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ABSTRACT

This curriculum guide is the first in a three-volume series of instructional materials for competency-based graphic arts instruction. Each publication is designed to include the technical content and tasks necessary for a student to be employed in an entry-level graphic arts occupation. Introductory materials include an instructional/task analysis that correlates job training with related information for this course; a list of tools, equipment, and materials; and a list of 18 references. Each of the 10 instructional units includes some or all of these basic components: performance objectives; suggested activities for teachers and students; information sheets; assignment sheets; job sheets; visual aids; tests; and answer keys. Units are planned for more than one lesson or class period. Unit topics include orientation; shop safety; shop organization; printing processes; paper; typography; typesetting; design principles; paste-up principles; and proof procedures and legal considerations. (YLB)

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GRAPHIC ARTS

ORIENTATION **COMPOSITION** **PASTE-UP**

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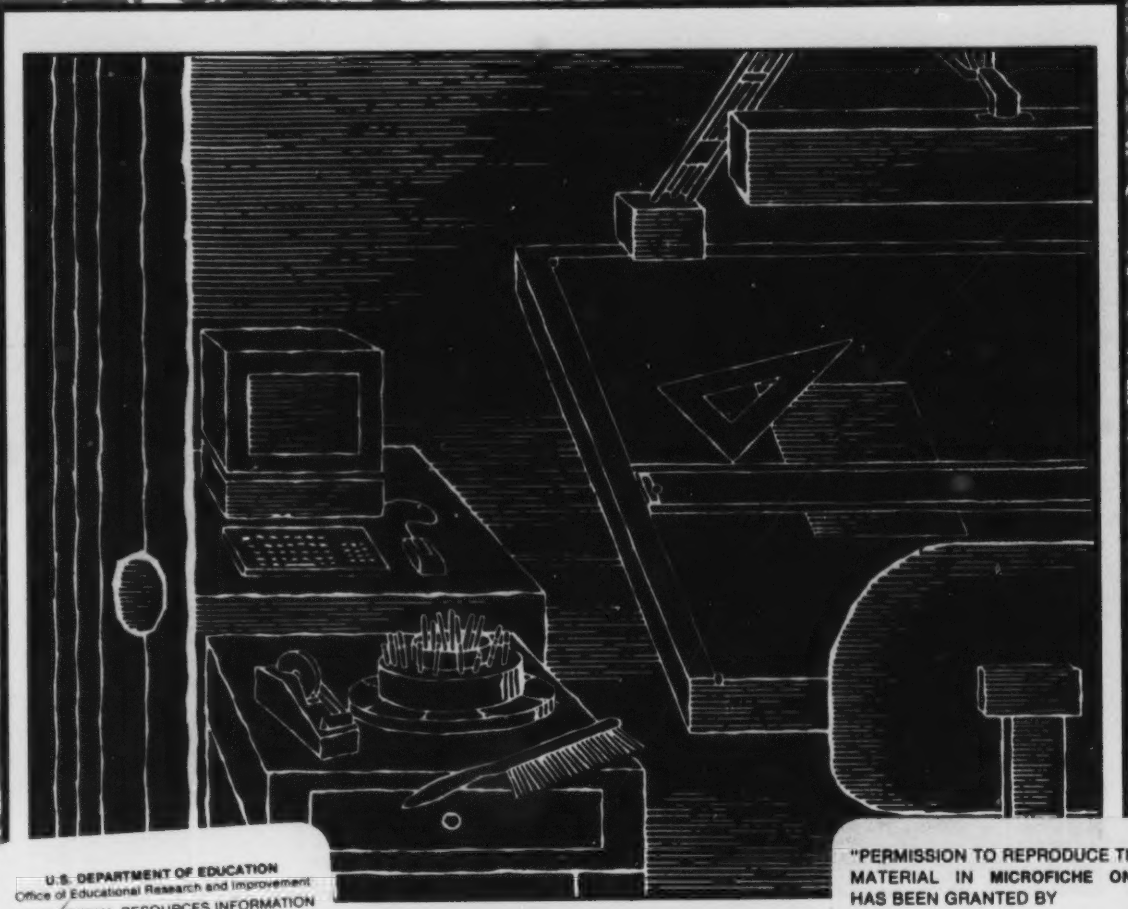

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TEACHER GUIDE

MAVCC

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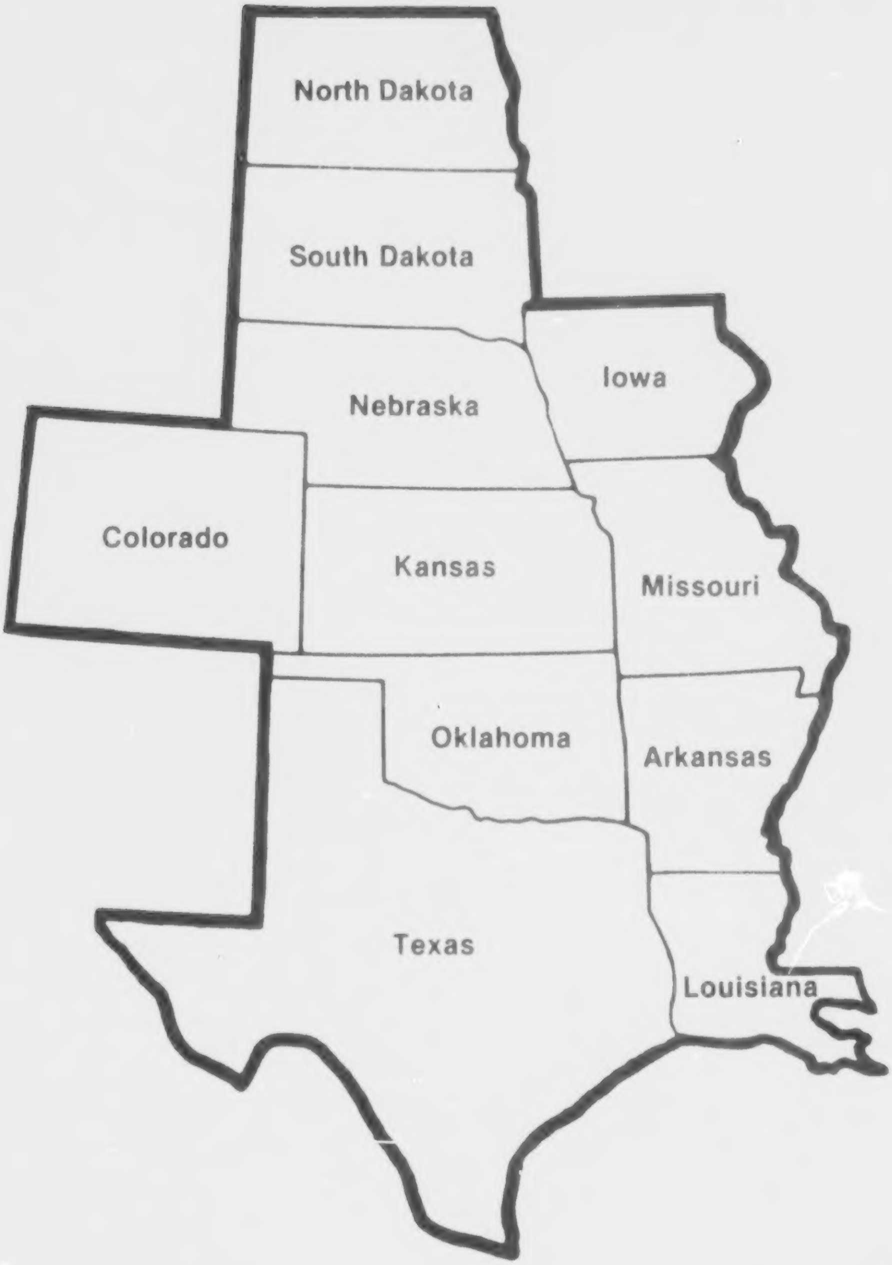
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Graphic Arts
Orientation, Composition, and Paste-Up

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Graphic Arts
Orientation, Composition, and Paste-Up

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Foreword

The Mid-America Vocational Curriculum Consortium (MAVCC) was organized for the purpose of developing competency-based instructional materials. All member states participate in establishing annual development priorities, and the need for curriculum in graphic arts truly reflects regional needs.

Graphic Arts: Orientation, Composition and Paste-Up is the first in the three volume series. Each publication is designed to include the technical content and tasks necessary for a student to be employed in an entry-level graphic arts occupation. Additional instructional materials have been developed for *Graphic Arts: Process Camera, Stripping, and Platemaking* and *Graphic Arts: The Press and Finishing Processes.*

This publication is a revision of *Graphic Arts I.* The revision is in response to the need to update the material.

The success of this publication is due to: (1) teacher response that has helped place the MAVCC format in the forefront in competency-based instructional materials and (2) the capabilities of the people who worked on its development. The technical writers, committee representatives, and curriculum specialists brought with them technical expertise and experience related to the classroom and to the trade.

As with any MAVCC publication, the teacher must take the instructional materials and (1) localize to fit community and industry needs, (2) personalize to meet each student's learning style and needs, and (3) supplement to meet individual teaching styles, to incorporate new innovations, and to expand the instructional materials. Every effort has been made to make *Graphic Arts: Orientation, Composition and Paste-Up* basic, readable, and by all means usable. If there is anything we can do to help make this publication become more useful to you, please let us know.

Ann Masters, Chairman
Board of Directors
Mid-America Vocational
Curriculum Consortium

Jim Steward
Executive Director
Mid-America Vocational
Curriculum Consortium

Acknowledgements

Appreciation is extended to those individuals who contributed their time and talent to the development of *Graphic Arts: Orientation, Composition, and Paste-Up.*

The contents of this publication were planned and reviewed by the following members of the Mid-America Vocational Curriculum Consortium graphic arts revision committee:

Vanessa Book	Executive Printing Kansas City, Missouri
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Special recognition is given to the authors of MAVCC's *Graphic Arts: Book One* upon which this revision is based. Their names are Karim Farajollahi, Gary Ogle, William Reed, and Kenneth Woodcock.

Thanks are also extended to Noel Wilcoxson and to Duane Foster for their assistance and support in revising the graphic arts instructional materials.

Special appreciation is extended to employees of the Graphics Division of the Oklahoma Department of Vocational-Technical Education for artwork, paste-up, phototypesetting and printing of this text.

Thanks are also extended to the various companies who provided reference materials and artwork for the graphic arts series.

Final thank yous go to Sue Feasley for her assistance with the editing and development of this publication and to Jane Huston for her assistance in coordinating this project.

Use of this Publication

Instructional Units

Graphic Arts: Orientation, Composition, and Paste-Up contains ten units of instruction. Each instructional unit includes some or all of the basic components of a unit of instruction; performance objectives, suggested activities for teachers and students, information sheets, assignment sheets, job sheets, visual aids, tests, and answers to the tests. Units are planned for more than one lesson or class period of instruction.

Careful study of each instructional unit by the teacher will help to determine:

A. The amount of material that can be covered in each class period.

B. The skills which must be demonstrated

  1. Supplies needed
  2. Equipment needed
  3. Amount of practice needed
  4. Amount of class time needed for demonstrations

C. Supplementary materials such as pamphlets or videotapes that must be ordered

D. Resource people who must be contacted

Objectives

Each unit of instruction is based on performance objectives. These objectives state the goals of the course, thus providing a sense of direction and accomplishment for the student.

Performance objectives are stated in two forms: unit objectives, stating the subject matter to be covered in a unit of instruction; and specific objectives, stating the student performance necessary to reach the unit objective.

Since the objectives of the unit provide direction for the teaching-learning process, it is important for the teacher and students to have a common understanding of the intent of the objectives. A limited number of performance terms have been used in the objectives for this curriculum to assist in promoting the effectiveness of the communication among all individuals using the materials.

Reading of the objectives by the student should be followed by a class discussion to answer any questions concerning performance requirements for each instructional unit.

Teachers should feel free to add objectives which will fit the material to the needs of the students and community. When teachers add objectives, they should remember to supply the needed information, assignment and/or job sheets, and criterion tests.

Suggested Activities for the Instructor

Each unit of instruction has a suggested activities sheet outlining steps to follow in accomplishing specific objectives. Duties of instructors will vary according to the particular unit; however, for best use of the material they should include the following: provide students with objective sheet, information sheet, assignment sheets, and job sheets; preview videotapes, make transparencies, and arrange for resource materials and people; discuss unit and specific objectives and information sheet; give test. Teachers are encouraged to use any additional instructional activities and teaching methods to aid students in accomplishing the objectives.

Information Sheets

Information sheets provide content essential for meeting the cognitive (knowledge) objectives in the unit. The teacher will find that the information sheets serve as an excellent guide for presenting the background knowledge necessary to develop the skill specified in the unit objective.

Students should read the information sheets before the information is discussed in class. Students may take additional notes on the information sheets.

Transparency Masters

Transparency masters provide information in a special way. The students may see as well as hear the material being presented, thus reinforcing the learning process. Transparencies may present new information or they may reinforce information presented in the information sheets. They are particularly effective when identification is necessary.

Transparencies should be made and placed in the notebook where they will be immediately available for use. Transparencies direct the class's attention to the topic of discussion. They should be left on the screen only when topics shown are under discussion.

Assignment Sheets

Assignment sheets give direction to study and furnish practice for paper and pencil activities to develop the knowledge which is a necessary prerequisite to skill development. These may be given to the student for completion in class or used for homework assignments. Answer sheets are provided which may be used by the student and/or teacher for checking student progress.

Job Sheets

Job sheets are an important segment of each unit. The instructor should be able to demonstrate the skills outlined in the job sheets. Procedures outlined in the job sheets give direction to the skill being taught and allow both student and teacher to check student progress toward the accomplishment of the skill. Job sheets provide a ready outline for students to follow if they have missed a demonstration. Job sheets also furnish potential employers with a picture of the skills being taught and the performances which might reasonably be expected from a person who has had this training.

Practical Tests

Practical tests provide the instructor with an evaluation instrument for each of the job sheets.

Test and Evaluation

Paper-pencil and performance tests have been constructed to measure student achievement of each objective listed in the unit of instruction. Individual test items may be pulled out and used as a short test to determine student achievement of a particular objective. This kind of testing may be used as a daily quiz and will help the teacher spot difficulties being encountered by students in their efforts to accomplish the unit objective. Test items for objectives added by the teacher should be constructed and added to the test.

Test Answers

Test answers are provided for each unit. These may be used by the teacher and/or student for checking student achievement of the objectives.

Graphic Arts
Orientation, Composition, and Paste-Up

Instructional / Task Analysis

<table>
<tr><th>RELATED INFORMATION: What the Worker Should Know (Cognitive)</th><th>JOB TRAINING: What the Worker Should Be Able to Do (Psychomotor)</th></tr>
<tr><td colspan="2">Unit I: Orientation</td></tr>
<tr><td>1. Major areas of specialization in the graphic arts trade</td><td></td></tr>
<tr><td>2. Types of companies that employ printers</td><td></td></tr>
<tr><td>3. Personal traits important for successful printers</td><td></td></tr>
<tr><td>4. Related skills important for successful printers</td><td></td></tr>
<tr><td>5. Advantages/disadvantages of an occupation in graphic arts</td><td></td></tr>
<tr><td></td><td>6. Determine graphic arts employment opportunities</td></tr>
<tr><td></td><td>7. Interview graphic arts employees</td></tr>
<tr><td></td><td>8. Visit a printing shop</td></tr>
<tr><td colspan="2">Unit II: Shop Safety</td></tr>
<tr><td>1. Terms and definitions</td><td></td></tr>
<tr><td>2. Proper safety rules to be practiced in the shop</td><td></td></tr>
<tr><td>3. Steps in maintaining a safe and orderly shop</td><td></td></tr>
<tr><td>4. Toxic chemical safety rules</td><td></td></tr>
<tr><td>5. Types of information on a Material Safety Data Sheet</td><td></td></tr>
<tr><td>6. Kinds of safety hazards</td><td></td></tr>
</table>

7. Things OSHA expects of an employer

8. Things OSHA expects of an employee

9. Colors of the safety color code

10. Classes of fires

11. Types of fire extinguishers

12. General guidelines for first aid emergencies

13. Complete a student safety pledge form

14. Survey the shop and identify correct safety practices

15. Read a Material Safety Data Sheet

16. Draw a floor plan and locate safety equipment in your shop

Unit III: Shop Organization

1. Main concerns of successful printing plant management

2. Strategies a manager can use to operate a graphic arts business

3. Job titles and their duties

4. Production steps of a typical printing job

5. Items essential to proper job production control

6. Steps for initiating a printing job

7. Make an organization chart of the school print shop

8. Draw a floor plan locating production areas in the school print shop

RELATED INFORMATION: What the Worker Should Know (Cognitive)

JOB TRAINING: What the Worker Should Be Able to Do (Psychomotor)

Unit IV: Printing Processes

1. Terms and definitions
2. Major printing processes
3. Principal pre-press steps in offset printing
4. Basic offset printing process
5. Advantages and uses of major printing processes
6. Specialized printing processes
7. Finishing operations
8. Types of materials on which printing is done
9. Methods of feeding paper into the press
10. Identify printing processes used to reproduce different printed pieces
11. Describe the offset printing process
12. Test the ink-water principle on an offset plate

Unit V: Paper

1. Terms and definitions
2. Basic paper grades and their uses
3. Basic paper sizes
4. Factors affecting paper choice
5. Tests and procedures for determining grain direction
6. Printing process requirements
7. Information to specify when ordering paper
8. Commercial envelope number sizes and their dimensions
9. Rules for handling paper

RELATED INFORMATION: What the Worker Should Know (Cognitive)	JOB TRAINING: What the Worker Should Be Able to Do (Psychomotor)
	10. Identify basic grades of paper
	11. Choose the correct paper for various jobs

Unit VI: Typography

RELATED INFORMATION: What the Worker Should Know (Cognitive)	JOB TRAINING: What the Worker Should Be Able to Do (Psychomotor)
1. Terms and definitions	
2. Parts of a type character	
3. Races of type	
4. Type families	
5. Measurement of type	
6. Formats of type composition	
	7. Identify type races in printed material
	8. Measure type
	9. Identify formats of type composition

Unit VII: Typesetting

RELATED INFORMATION: What the Worker Should Know (Cognitive)	JOB TRAINING: What the Worker Should Be Able to Do (Psychomotor)
1. Terms and definitions	
2. Composition methods	
3. Advantages/disadvantages of composition methods	
4. Typesetting process	
5. Copyfitting	
6. Marking up copy	
	7. Calculate copy fitting
	8. Mark up copy
	9. Set type using a phototypesetting machine
	10. Set type using a microcomputer

RELATED INFORMATION: What the Worker Should Know (Cognitive)	JOB TRAINING: What the Worker Should Be Able to Do (Psychomotor)
Unit VIII: Design Principles	
1. Terms and definitions	
2. Terms related to color	
3. Steps in the design process	
4. Things the designer wants from the printer	
5. Functions of design	
6. Components of printed communication	
7. Three stages of layout	
8. Principles of design	
9. Types of art and their sources	
10. Working with color	
11. Kinds of publication design	
	12. Make thumbnail and rough layouts
	13. Label magazine ads that utilize principles of design
	14. Identify types of art in printed material
	15. Complete a drawing of the printer's color wheel
	16. Identify six basic color combinations in printed material
Unit IX: Paste-Up Principles and Procedures	
1. Terms and definitions	
2. Paste-up tools and materials	
3. Basic paste-up steps	
4. Registration methods	
5. Use of clear acetate and ruby film	

RELATED INFORMATION: What the Worker Should Know (Cognitive)	JOB TRAINING: What the Worker Should Be Able to Do (Psychomotor)
6. Processing art for production	
7. Kinds of imposition	
8. Postal regulations	
	9. Prepare a paste-up
	10. Prepare overlays using clear acetate and ruby film
	11. Crop a photograph
	12. Scale copy

Unit X: Proof Procedures and Legal Considerations

RELATED INFORMATION: What the Worker Should Know (Cognitive)	JOB TRAINING: What the Worker Should Be Able to Do (Psychomotor)
1. Terms and definitions	
2. Reasons for pulling proofs	
3. Types of proofs	
4. Proofreaders' marks	
5. Reading, marking, and correcting galley proofs	
6. Legal restrictions	
7. Elements of copyright notice	
8. Tests for judging the "fair use" of copyrighted material	
9. Items that may be copyrighted	
10. Items not eligible for copyright	
11. Provisions for using photographs of people for advertising purposes	
	12. Read and mark proof copy

Graphic Arts
Orientation, Composition, and Paste-Up

Tools, Materials, and Equipment List

Black paper
Burnishing roller

China marking pencil
Clean-up solvents
Clear acetate film and Rubylith
Computer

Developed offset plate
Drawing board or light table

Eraser

Fine-tipped black pen

Grid or base sheets

Laser printer
Line gauge

Masking tape
Mechanical films

Nonreproducing light blue pencil or pen

Opaque white paint or correction fluid

Phototypesetting machine
Plain white or coated paper
Preservatives
Processor and chemicals
Proportional scale

Rubber cement
Ruler

Thimble-size portion of black ink
Tissue or tracing paper
T square
Triangle
Trimboard
Two cotton pads
Type image carrier

Water bottle
Waxer

X-Acto knife

Graphic Arts
Orientation, Composition, and Paste-Up

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Pocket Pal: A Graphic Arts Production Handbook. New York, NY: International Paper Co., 1983.

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Spence, Dr. William P. and Dr. David G. Vequist. *Graphic Reproduction.* Peoria, IL: Chas. A. Bennett Co., Inc., 1980.

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ORIENTATION
UNIT I

UNIT OBJECTIVE

After completion of this unit, the student should be able to identify major areas of specialization in the printing trade and personal traits and related skills important for successful printers. Competencies will be demonstrated by completing the assignment sheets and the unit test with a minimum score of 85 percent.

SPECIFIC OBJECTIVES

After completion of this unit, the student should be able to:

1. Select major areas of specialization in the graphic arts trade.
2. Name types of companies that employ printers.
3. Select true statements concerning personal traits important for successful printers.
4. Select related skills important for successful printers.
5. Distinguish between the advantages and disadvantages of an occupation in graphic arts.
6. Determine graphic arts employment opportunities. (Assignment Sheet #1)
7. Interview graphic arts employees. (Assignment Sheet #2)
8. Visit a printing shop. (Assignment Sheet #3)

ORIENTATION
UNIT I

SUGGESTED ACTIVITIES

A. Obtain additional materials and/or invite resource people to class to supplement/ reinforce information provided in this unit of instruction.

(NOTE: This activity should be completed prior to the teaching of this unit.)

B. Make transparency from the transparency master included with this unit.

C. Provide students with objective sheet.

D. Discuss unit and specific objectives.

E. Provide students with information and assignment sheets.

F. Discuss information and assignment sheets.

(NOTE: Use the transparency to enhance the information as needed.)

G. Integrate the following activities throughout the teaching of this unit:

1. Show the videotape *Graphic Communications: The Key to Your Future* or *Pocket Pal the Movie: An Introduction to Printing.*
2. Invite a guest speaker from the graphic arts industry to talk about opportunities, pay, advantages and disadvantages.
3. Take a field trip to a commercial printing shop or the production facility of a newspaper or magazine.
4. Discuss some of the rapid changes that are taking place in graphic arts technology and future directions this technology will take.
5. Meet individually with students to evaluate their progress through this unit of instruction, and indicate to them possible areas for improvement.

H. Give test.

I. Evaluate test.

J. Reteach if necessary.

REFERENCES USED IN WRITING THIS UNIT

A. Baird, Russell N., Arthur T. Turnbull and Duncan McDonald. *The Graphics of Communication.* New York, NY: Holt, Rinehart and Winston, 1987.

B. Cogoli, John E. *Photo-Offset Fundamentals.* Bloomington, IL: McKnight Publishing Co., 1980.

REFERENCES USED IN WRITING THIS UNIT

C. *Overview of Graphic Communications.* Pittsburgh, PA: Graphic Arts Technical Foundation.

D. Spence, Dr. William P. and Dr. David G. Vequist. *Graphic Reproduction.* Peoria, IL: Chas. A. Bennett Co., Inc., 1980.

SUGGESTED SUPPLEMENTAL MATERIAL

A. Booklet—*Exploring Graphic Communications*

Available from:

Education Council of the Graphic Arts Industry
Graphic Arts Technical Foundation
4615 Forbes Avenue
Pittsburgh, PA 15213-3796

B. Videotapes (VHS)

1. *Graphic Communications: The Key to Your Future*

   Available from:

   Education Council of the Graphic Arts Industry
   Graphic Arts Technical Foundation
   4615 Forbes Avenue
   Pittsburgh, PA 15213-3796

2. *Pocket Pal the Movie: An Introduction to Printing*

   Available from:

   International Paper Co.
   New York, NY

ORIENTATION
UNIT I

INFORMATION SHEET

I. **Major areas of specialization in the graphic arts trade** (Transparency 1)

   A. Sales and customer service

   B. Writing, design and layout

   C. Typesetting

   D. Proofreading

   E. Paste-up

   F. Graphic arts photography

   G. Stripping and imposition

   H. Platemaking

   I. Printing

   J. Folding, binding and finishing

   (NOTE: Computerization has been introduced into virtually every facet of graphic arts production.)

II. **Types of companies that employ printers**

   A. Commercial printing plants

   B. In-house printing plants

   C. Newspapers

   D. Magazine publishers

   E. Book publishers

   F. Yearbook publishers

   G. Greeting card publishers

   H. Business form printers

   I. Financial and legal printers

   J. Packaging manufacturers

INFORMATION SHEET

K. Specialty shops

  Examples: Quick printers, design shops, typesetters, color separation services, bindery/finishing services

L. Advertising agencies and public relations firms

M. Printing supply firms

N. Printing machinery companies

O. Paper merchants

III. Personal traits important for successful printers

A. Ability to listen to and follow instructions well

B. Punctuality

C. Dependability

D. Ability to accept constructive criticism

E. Desire for success

F. Ability to work well with others

G. Mechanical ability

H. Trustworthiness

I. Willingness to continue education

IV. Related skills important for successful printers

A. Ability to operate printing equipment correctly

B. Accuracy

C. Speed

D. Neatness

E. Ability to work without direct supervision

F. Desire for perfection

G. Willingness to work shifts, weekends, overtime

INFORMATION SHEET

V. **Advantages and disadvantages of an occupation in graphic arts**

A. Advantages

1. Open job market
2. Rapidly growing industry
3. Quick advancement and pay increases
4. Stability
5. Available overtime opportunities
6. Comfortable indoor working conditions
7. Variety of challenging tasks
8. Sense of pride and satisfaction

B. Disadvantages

1. Close work confinement
2. Pressure of work deadlines
3. Rigid standards for accuracy
4. Competitive pay structure
5. Long hours during peak production periods
6. Most good employment opportunities are confined to metropolitan areas

Graphic Arts Specializations

- Sales, customer service
- Writing, design, and layout
- Typesetting
- Proofreading
- Paste-up
- Graphic arts photography
- Stripping and imposition
- Platemaking
- Printing
- Folding, binding, finishing

TM 1

ORIENTATION
UNIT I

ASSIGNMENT SHEET #1 — DETERMINE GRAPHIC ARTS EMPLOYMENT OPPORTUNITIES

Name ______________________ Score ______________

Directions: Using the want ads from a local newspaper, determine as many employment opportunities as possible related to the graphic arts industry in your community. List these jobs and the places of employment below.

	Job	Type of Company
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		

How many job listings were you able to find? ______________

What job interests you the most? ______________

Explain why. ______________

ORIENTATION
UNIT I

ASSIGNMENT SHEET #2 — INTERVIEW GRAPHIC ARTS EMPLOYEES

Name ______________________________ Score ____________

Directions: Interview people in skilled positions, as well as those in management, at a local printing plant to determine information that would help you in better understanding this trade. Ask each person you interview the following questions.

1. What is your position? ______________________________

2. What are the job responsibilities? ______________________________

3. What are the advantages of this job? ______________________________

4. What are the disadvantages of this job? ______________________________

5. What training requirements are needed to be employed in this job? ____________

6. What is the approximate salary? ______________________________

7. What other information should a prospective employee in the graphic arts know about this job? ______________________________

ORIENTATION
UNIT I

ASSIGNMENT SHEET #3 — VISIT A PRINTING SHOP

Name ______________________________ Score ____________

Directions: Visit a local commercial or in-house printing shop or the production facility for a newspaper or magazine.

1. Attempt to locate the nine graphic arts phases: writing, design and layout; typesetting; proofreading; paste-up; graphic arts photography; stripping and imposition; platemaking; printing; and folding, binding and finishing.
2. Ask the printing plant representative why each graphic arts phase is physically located where it is. Has it been changed recently?
3. Complete the chart on the next page.

ASSIGNMENT SHEET #3

GRAPHIC ARTS PHASE	LOCATION	WHY LOCATION WAS CHOSEN
Writing, design and layout		
Typesetting		
Proofreading		
Paste-up		
Graphic arts photography		
Stripping and imposition		
Platemaking		
Printing		
Folding, binding and finishing		

ORIENTATION
UNIT I

ANSWERS TO ASSIGNMENT SHEETS

Assignment Sheet #1

The student should list several graphic arts jobs and give a valid reason for selecting a preference.

Assignment Sheet #2

Answers to interview questions should be provided in a clear, concise manner.

Assignment Sheet #3

The student should be able to briefly describe the location of the nine graphic arts phases and explain why that location is appropriate.

ORIENTATION
UNIT I

TEST

Name ______________________________ Score ____________

1. Select major areas of specialization in the graphic arts trade by placing an "X" in the appropriate blanks.

_____a. Folding, binding, and finishing

_____b. Graphic arts photography

_____c. Printing

_____d. Welding

_____e. Proofreading

_____f. Platemaking

2. Name six types of companies that employ printers.

a. ______________________________

b. ______________________________

c. ______________________________

d. ______________________________

e. ______________________________

f. ______________________________

3. Select true statements concerning personal traits important for successful printers by placing an "X" in the appropriate blanks.

_____a. Ability to listen to and follow instructions well

_____b. Ability to disregard constructive criticism

_____c. Dependability

_____d. Ability to work well with others

_____e. Unwillingness to continue education

_____f. Ability to get to work on time frequently

TEST

4. Select related skills important for successful printers by placing an "X" in the appropriate blanks.

_____a. Accuracy

_____b. Ability to work without direct supervision

_____c. Ability to type

_____d. Desire for perfection

5. Distinguish between the advantages and disadvantages of an occupation in graphic arts by placing an "A" next to advantages and a "D" next to disadvantages.

_____a. Variety of challenging tasks

_____b. Close work confinement

_____c. Open job market

_____d. Pressure of work deadlines

_____e. Sense of pride and satisfaction

_____f. Rigid standards for accuracy

_____g. Competitive pay structure

_____h. Long hours during peak production periods

_____i. Most good employment opportunities are confined to metropolitan areas

_____j. Stability

(NOTE: If the following activities have not been accomplished prior to the test, ask your instructor when they should be completed.)

6. Determine graphic arts employment opportunities. (Assignment Sheet #1)

7. Interview graphic arts employees. (Assignment Sheet #2)

8. Visit a printing shop. (Assignment Sheet #3)

ORIENTATION
UNIT I

ANSWERS TO TEST

1. a, b, c, e, f

2. Any six of the following:
   a. Commercial printing plants
   b. In-house printing plants
   c. Newspapers
   d. Magazine publishers
   e. Book publishers
   f. Yearbook publishers
   g. Greeting card publishers
   h. Business form printers
   i. Financial and legal printers
   j. Packaging manufacturers
   k. Specialty shops
   l. Advertising agencies and public relations firms
   m. Printing supply firms
   n. Printing machinery companies
   o. Paper merchants

3. a, c, d

4. a, b, d

5.

a.	A	e.	A	i.	D
b.	D	f.	D	j.	A
c.	A	g.	D		
d.	D	h.	D		

6. Evaluated to the satisfaction of the instructor

7. Evaluated to the satisfaction of the instructor

8. Evaluated to the satisfaction of the instructor

SHOP SAFETY
UNIT II

UNIT OBJECTIVE

After completion of this unit, the student should be able to read a Material Safety Data Sheet, identify and follow correct shop safety practices. Competencies will be demonstrated by completing the assignment sheets and the unit test with a minimum score of 100 percent.

SPECIFIC OBJECTIVES

After completion of this unit, the student should be able to:

1. Match terms associated with shop safety with the correct definitions.
2. Select true statements concerning proper safety rules to be practiced in the shop.
3. Complete statements concerning the steps in maintaining a safe and orderly shop.
4. Select true statements concerning toxic chemical safety rules.
5. List types of information on a Material Safety Data Sheet.
6. List the five kinds of safety hazards.
7. Select true statements concerning things OSHA expects of an employer.
8. Select true statements concerning things OSHA expects of an employee.
9. Match the colors of the safety color code with the correct designations.
10. Match the classes of fires with the correct definitions.
11. Match types of fire extinguishers with their uses.
12. List the general guidelines for first aid emergencies.
13. Complete a student safety pledge form. (Assignment Sheet #1)
14. Survey the shop and identify correct safety practices. (Assignment Sheet #2)
15. Read a Material Safety Data Sheet. (Assignment Sheet #3)
16. Draw a floor plan and locate safety equipment in your shop. (Assignment Sheet #4)

SHOP SAFETY
UNIT II

SUGGESTED ACTIVITIES

A. Obtain additional materials and/or invite resource people to class to supplement/reinforce information provided in this unit of instruction.

(NOTE: This activity should be completed prior to the teaching of this unit.)

B. Make transparencies from the transparency masters included with this unit.

C. Provide students with objective sheet.

D. Discuss unit and specific objectives.

E. Provide students with information and assignment sheets.

F. Discuss information and assignment sheets.

(NOTE: Use the transparencies to enhance the information as needed.)

G. Integrate the following activities throughout the teaching of this unit:

1. Stress laboratory safety in all areas of activity.
2. Lead students on a tour of the shop and point out mechanical, fire, chemical, light and noise hazards.
3. Invite a representative from the fire department or OSHA to speak on shop safety.
4. Discuss local, state and federal safety regulations and Right-To-Know laws.
5. Relate your personal experiences concerning dangerous situations caused by lack of safety.
6. Discuss color coding as it relates to the shop area.
7. Show types of fire extinguishers and their functions.
8. Discuss emergency procedures that have been adopted by your school.
9. Demonstrate emergency first aid procedures.
10. Meet individually with students to evaluate their progress through this unit of instruction, and indicate to them possible areas for improvement.

H. Give test.

I. Evaluate test.

J. Reteach if necessary.

REFERENCES USED IN WRITING THIS UNIT

A. Cogoli, John E., *Photo-Offset Fundamentals*. Bloomington, IL: McKnight Publishing Co., 1980.

B. Dennis, Ervin A., *Lithographic Technology*. Indianapolis, IN: The Bobbs-Merrill Company, Inc., 1980.

C. *The Lithographers Manual*, ed. Raymond N. Blair. Pittsburgh, PA: Graphic Arts Technical Foundation, 1983.

SUGGESTED SUPPLEMENTAL MATERIAL

Text—Strock, Louis D., *Safety Practices for the Graphic Arts*. Pittsburgh, PA: Graphic Arts Technical Foundation, 1984.

Slide set—*Understanding the OSHA Hazard Communication Standard*

Available from:

Education Council of the Graphic Arts Industry
Graphic Arts Technical Foundation
4615 Forbes Avenue
Pittsburgh, PA 15213-3796

SHOP SAFETY
UNIT II

INFORMATION SHEET

I. **Terms and definitions**

A. Accident — Any suddenly occurring, unintentional event which causes personal injury or property damage

B. Combustibles — Materials or liquids that catch fire easily

C. First aid — Immediate, temporary care given the victim of an accident or sudden illness until the services of a physician can be obtained

D. Hazard — A potential source of danger

E. Material Safety Data Sheet (MSDS) — Written or printed material concerning a hazardous chemical

F. Occupational Safety and Health Administration (OSHA) — Federal agency established to insure safe and sanitary working conditions for employees

G. Right-To-Know — Statutory right of access to every public record of a state or federal agency

H. Safety — State or condition of being safe; freedom from danger, risk, or injury

II. **Shop safety rules**

A. Conduct yourself in a manner conducive to safe shop practices.

B. **Do not** use any equipment until you understand how to use it.

C. Operate any presses or electrically powered equipment only after obtaining the approval of your instructor.

D. **Never** walk away from equipment that is running.

E. Always keep your hands away from a machine's moving parts.

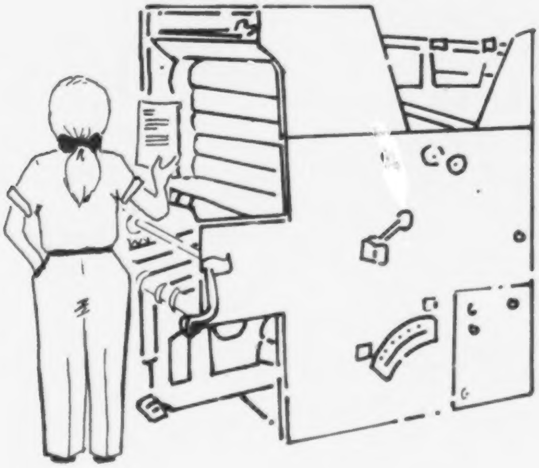
F. Use the correct tools and equipment when doing a job.

G. Limit the operation of the paper cutter, paper drill, and stitcher to one person at a time.

H. Limit the operation of all presses and duplicators to one person at a time.

INFORMATION SHEET

I. Tie back all long hair prior to operating any press or power equipment.



J. **Do not** clean any press or power equipment while it is in operation.

K. Remove ties, scarves, loose clothing, rings and other jewelry before operating any press or power equipment.

L. **Do not** sit or lean on light tables.

M. Avoid touching or looking directly at light sources.

N. Wear eye protection in areas where flying objects and splashing solutions are possible.

O. Wear hearing protection when subjected to continuous loud noise.

P. Use soap and water frequently to help prevent skin irritation.

Q. **Do not** engage in horseplay, scuffling, or practical joking in the classroom or shop.

R. Use the "buddy system" when working in the graphics laboratory.

III. Maintaining a safe and orderly shop

A. Report any unsafe condition in the shop immediately.

B. Arrange all machinery and equipment to permit safe and efficient operation.

C. Keep materials and supplies safely stacked and stored.

INFORMATION SHEET

D. Keep all tools and accessories in cabinets or tool racks.

E. Dispose of or store all combustible materials in safe containers.

F. Keep all floors clean and free of debris at all times.

G. Check that adequate housekeeping equipment and cleaning materials are on hand to insure that maximum cleaning efficiency can be maintained.

H. Participate in daily cleanup periods.

IV. Safety rules regarding toxic chemicals

A. Work in a well-ventilated area.

B. Wear protective gloves and aprons when handling chemicals.

C. Wear protective splash-proof goggles when working with acids and caustic chemicals.

D. Know the dangers of each chemical.

E. Pour chemical into water, never water into chemical.

F. Read container labels carefully before using products.

(CAUTION: Do not use products that are not labeled.)

G. Store chemicals on lower shelves of locked metal cabinets.

(NOTE: Be sure cabinets are located in an area that meets local, state, and national codes.)

V. Types of information on a Material Safety Data Sheet

A. Chemical name

B. Hazardous ingredients/chemical identity

C. Physical characteristics

D. Fire and explosion data

E. Reactivity

F. Health hazards

G. Usage, handling, and storage

H. Special protection and precautions

INFORMATION SHEET

VI. **Kinds of safety hazards**

A. Mechanical

B. Fire

C. Chemical

D. Light

E. Noise

VII. **Things OSHA expects of an employer** (Transparency 1)

A. Provide a hazard-free workplace and comply with occupational safety and health standards.

B. Inspect job sites to assure they meet safety standards.

C. Use properly color-coded signs to warn of danger.

D. Obtain a Material Safety Data Sheet (MSDS) for each hazardous chemical present in the workplace and make sure any chemical containers are properly labeled and that MSDSs are readily accessible to employees.

E. Formulate and implement a training program for employees that informs them of any and all chemical substances to which they are exposed and trains them in the proper handling of such substances.

F. Keep required records of work-related injuries and post an annual summary in February of each year.

G. Report to OSHA within 48 hours any accident which is fatal or hospitalizes five or more workers.

H. Post in a prominent place OSHA poster #2203 informing workers of their rights and responsibilities.

VIII. **Things OSHA expects of an employee**

A. Read the OSHA poster #2203 and comply with its standards.

B. Follow employer safety and health rules and wear prescribed clothing or protective equipment on the job.

C. Report any hazardous conditions to a supervisor.

D. Report all job-related injuries to a supervisor and seek prompt treatment if required.

E. Report to OSHA in a responsible manner any hazardous working situations which you feel the employer has not attended to properly.

INFORMATION SHEET

IX. Colors and designations of the safety color code

A. Green—Designates location of safety and first aid equipment

B. Yellow—Designates caution and marks physical hazards

EXAMPLES: Operating levers, handles, areas where tripping would be hazardous, waste containers for combustible materials

C. Orange—Designates dangerous parts of equipment which may cut, crush, shock, or otherwise injure

EXAMPLES: Electrical switches, fuses, electrical power boxes, movable guards

D. Red—Designates location of fire fighting equipment

EXAMPLES: Emergency fire exits, fire extinguishers; also emergency stop switches on machinery, portable containers of flammable liquids

E. Blue—Designates caution against starting equipment while it is being worked on or use of defective equipment

F. Ivory—Highlights an area that might otherwise not be noticed

EXAMPLES: Edges of tools, vise jaws, label edges

X. Types of fires and their classifications (Transparency 2)

A. Class A — Fires that involve ordinary combustible materials

EXAMPLES: Wood, rags, paper, or trash

B. Class B — Fires that involve flammable liquids

EXAMPLES: Blanket wash, gasoline, oil, grease

C. Class C — Fires that involve electrical or electronic equipment

EXAMPLES: Motors, switchboards, electrical wiring

D. Class D — Fires that involve combustible metals

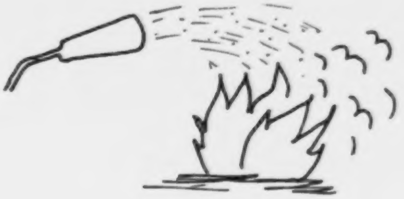
EXAMPLES: Powdered aluminum and magnesium

INFORMATION SHEET

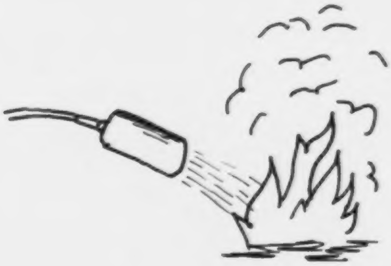
XI. **Types of fire extinguishers and their uses** (Transparency 3)

A. Foam — Spray above fire, allowing foam to fall lightly on the fire; use for class A or class B fires.

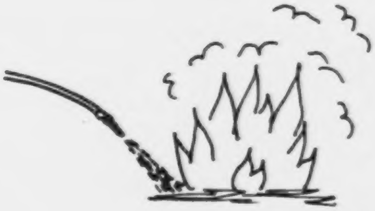
(CAUTION: Do not spray a stream directly into the fire.)



B. Carbon dioxide — Direct discharge as close to fire as possible, first at the edge of flames, then gradually forward and upward; use for class B or class C fires.

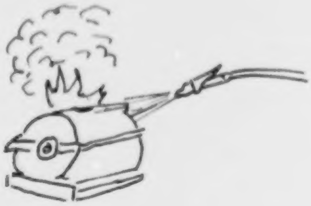


C. Pump tank — Place foot on lever and pump while directing stream at base of fire; use for class A fires only.



INFORMATION SHEET

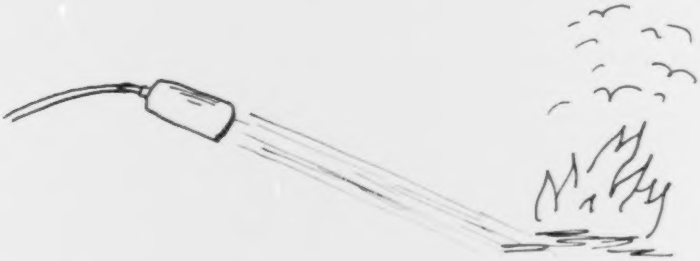
D. Dry chemical — Direct at the base of the flames, then follow up by directing at remaining materials that are burning; use for class A, class B, or class C fires.



E. Halon — Stand back ten feet, hold upright and direct at the base of fire, sweeping from side to side; use for class B or class C fires.

(NOTE: Halon is a clean, liquified gas which does not leave a residue.)

(CAUTION: A high concentration of burnt halon gas may be hazardous to your health.)



XII. General guidelines for first aid emergencies

A. Turn off power.

B. Administer first aid.

(CAUTION: Be sure you have a valid reason for any first aid you administer.)

C. Reassure the injured person that everything possible is being done.

(NOTE: Hearing the concerned voice of a co-worker is psychologically comforting to an injured person and may actually lessen the degree of shock.)

INFORMATION SHEET

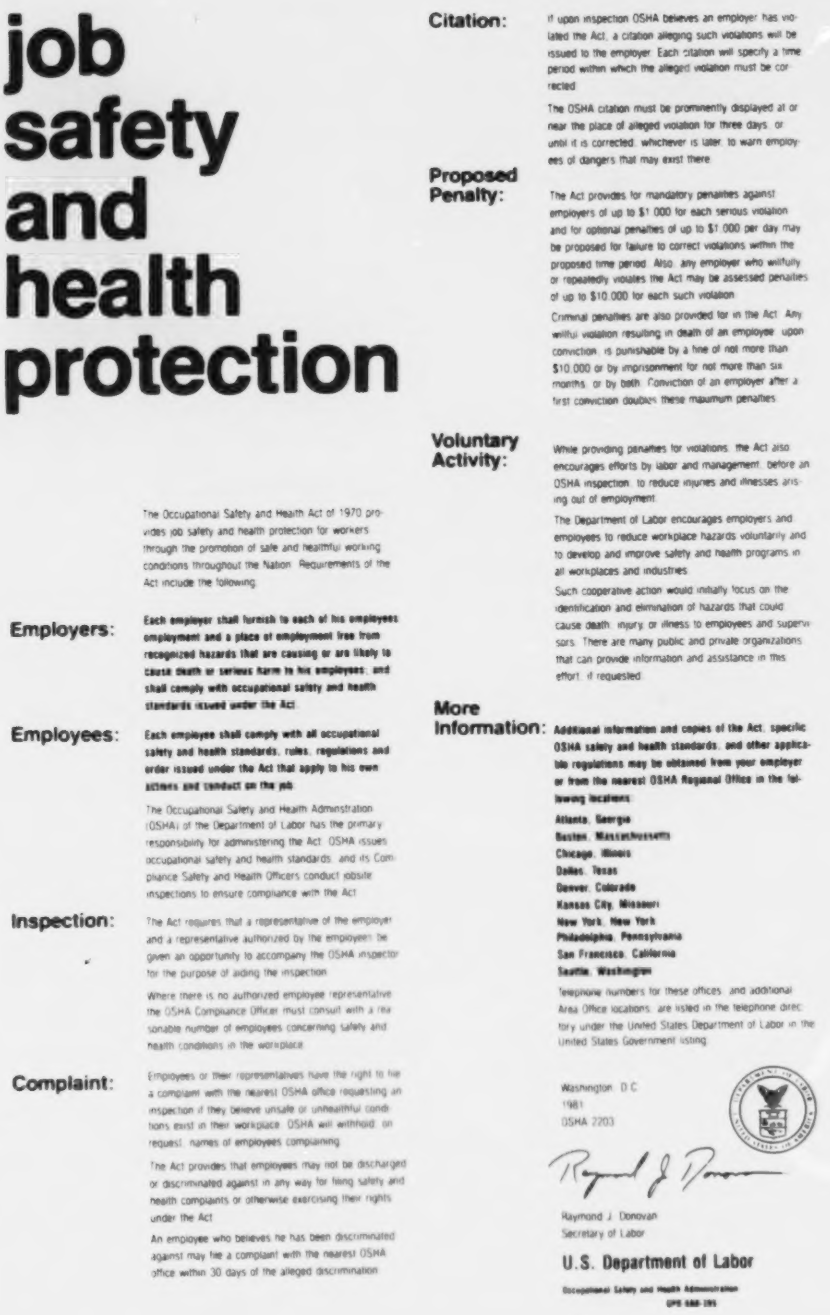
D. Report all accidents and injuries to your instructor or jobsite supervisor, no matter how minor they may seem.

(NOTE: Follow emergency procedures that have been adopted by the local school board.)

E. Make accurate notes about the accident including name of victim, time, place, cause or nature of the accident, and any first aid that was administered.

(NOTE: Do not notify the victim's family because this is the responsibility of the school, the jobsite supervisor, or the medical facility.)

OSHA Poster #2203



job safety and health protection

The Occupational Safety and Health Act of 1970 provides job safety and health protection for workers through the promotion of safe and healthful working conditions throughout the Nation. Requirements of the Act include the following:

Employers: **Each employer shall furnish to each of his employees employment and a place of employment free from recognized hazards that are causing or are likely to cause death or serious harm to his employees; and shall comply with occupational safety and health standards issued under the Act.**

Employees: **Each employee shall comply with all occupational safety and health standards, rules, regulations and order issued under the Act that apply to his own actions and conduct on the job.**

The Occupational Safety and Health Administration (OSHA) of the Department of Labor has the primary responsibility for administering the Act. OSHA issues occupational safety and health standards, and its Compliance Safety and Health Officers conduct jobsite inspections to ensure compliance with the Act.

Inspection: The Act requires that a representative of the employer and a representative authorized by the employees be given an opportunity to accompany the OSHA inspector for the purpose of aiding the inspection.

Where there is no authorized employee representative, the OSHA Compliance Officer must consult with a reasonable number of employees concerning safety and health conditions in the workplace.

Complaint: Employees or their representatives have the right to file a complaint with the nearest OSHA office requesting an inspection if they believe unsafe or unhealthful conditions exist in their workplace. OSHA will withhold, on request, names of employees complaining.

The Act provides that employees may not be discharged or discriminated against in any way for filing safety and health complaints or otherwise exercising their rights under the Act.

An employee who believes he has been discriminated against may file a complaint with the nearest OSHA office within 30 days of the alleged discrimination.

Citation: If upon inspection OSHA believes an employer has violated the Act, a citation alleging such violations will be issued to the employer. Each citation will specify a time period within which the alleged violation must be corrected.

The OSHA citation must be prominently displayed at or near the place of alleged violation for three days, or until it is corrected, whichever is later, to warn employees of dangers that may exist there.

Proposed Penalty: The Act provides for mandatory penalties against employers of up to $1,000 for each serious violation and for optional penalties of up to $1,000 per day may be proposed for failure to correct violations within the proposed time period. Also, any employer who willfully or repeatedly violates the Act may be assessed penalties of up to $10,000 for each such violation.

Criminal penalties are also provided for in the Act. Any willful violation resulting in death of an employee, upon conviction, is punishable by a fine of not more than $10,000 or by imprisonment for not more than six months, or by both. Conviction of an employer after a first conviction doubles these maximum penalties.

Voluntary Activity: While providing penalties for violations, the Act also encourages efforts by labor and management, before an OSHA inspection, to reduce injuries and illnesses arising out of employment.

The Department of Labor encourages employers and employees to reduce workplace hazards voluntarily and to develop and improve safety and health programs in all workplaces and industries.

Such cooperative action would initially focus on the identification and elimination of hazards that could cause death, injury, or illness to employees and supervisors. There are many public and private organizations that can provide information and assistance in this effort, if requested.

More Information: **Additional information and copies of the Act, specific OSHA safety and health standards, and other applicable regulations may be obtained from your employer or from the nearest OSHA Regional Office in the following locations:**

Atlanta, Georgia
Boston, Massachusetts
Chicago, Illinois
Dallas, Texas
Denver, Colorado
Kansas City, Missouri
New York, New York
Philadelphia, Pennsylvania
San Francisco, California
Seattle, Washington

Telephone numbers for these offices, and additional Area Office locations, are listed in the telephone directory under the United States Department of Labor in the United States Government listing.

Washington, D.C.
1981
OSHA 2203

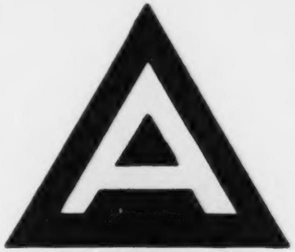
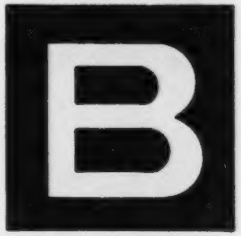
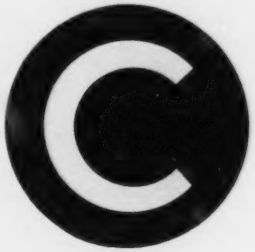
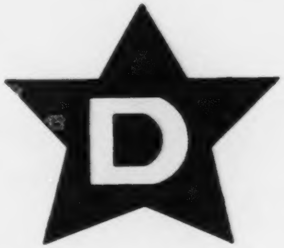
Raymond J Donovan

Raymond J. Donovan
Secretary of Labor

U.S. Department of Labor

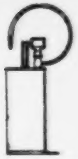
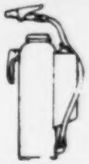
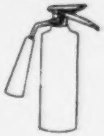
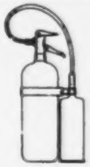
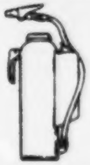
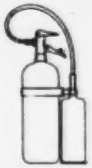
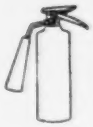
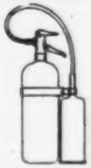
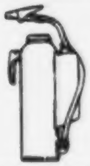
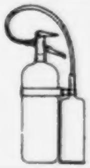
Occupational Safety and Health Administration
GPO [illegible]

Standard Letter Symbols for Fire Extinguishers

GREEN	RED	BLUE	YELLOW
			
ORDINARY COMBUSTIBLES	FLAMMABLE LIQUIDS	ELECTRICAL EQUIPMENT	COMBUSTIBLE METALS

Distinctive letters, shapes, and colors mark extinguishers according to the classes of fires on which they should be used.

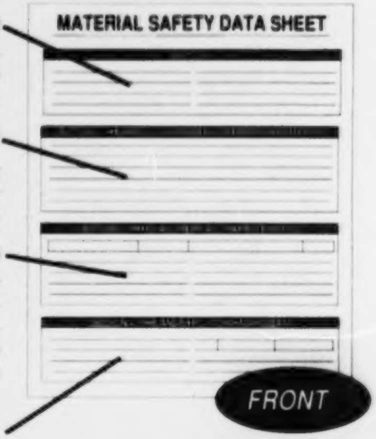
Types of Fire Extinguishers

Type of Fire	Approved Type of Extinguisher				
	Pressurized Water	Carbon Dioxide	Multi-Purpose Dry Chemical	Halon Gas	Foam
Class A Fires ORDINARY COMBUSTIBLES • Wood • Paper • Cloth, etc.					
Class B Fires FLAMMABLE LIQUIDS, GREASE • Gasoline • Paints • Oils, etc.					
Class C Fires ELECTRICAL EQUIPMENT • Motors • Switches, etc.					

READING MATERIAL SAFETY DATA SHEETS

Effective Protection You Can Depend On

The Material Safety Data Sheet, or MSDS, is written information that can help protect you from overexposure to chemicals you find on the job. The MSDS is part of your company's Hazard Communications Program. Each company can design its own MSDS form, and the sections may be in different order. But, the basic kinds of information on any MSDS will be the same.



Chemical Name

Lists the identity of the substance (the name on the label), date the MSDS was prepared, the name and address of the manufacturer, and usually a phone number for emergencies and more information.

Hazardous Ingredients/Chemical Identity

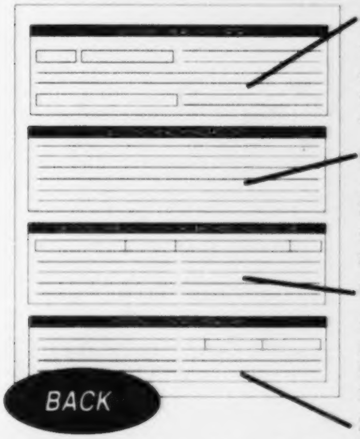
Includes names of substances in the chemical that might be dangerous, and safe exposure limits such as Permissible Exposure Limit or PEL (set by OSHA) or the Threshold Value Limit or TVL. Also lists common names for the chemical.

Physical Characteristics

Describes many physical qualities of the chemical, and lets you know what's usual or safe. For example, how the chemical looks and smells; boiling and melting temperatures (important in case a chemical might become a gas you could breathe); evaporation rate (known as percent volatile); how easily the chemical dissolves; and how heavy it is (this tells you if it will sink, float, or dissolve in water.)

Fire and Explosion Data

Tells you the lowest temperature when the chemical could catch fire ("flash point"). Lets you know if it's flammable (catches fire below 100° F) or combustible (catches fire above 100° F). Lists the best way to put out a fire involving that chemical.



Reactivity

Describes what happens if this chemical comes in contact with air, water, or other chemicals. Describes conditions (like heat) or materials (like water) that can cause the chemical to react by burning, exploding, or releasing dangerous vapors. The chemical is called "incompatible" or "unstable" with these conditions or substances.

Health Hazards

Lists ways the chemical might enter your body, like splashing on your skin or being breathed in as vapor as well as possible symptoms of overexposure. Lets you know if overexposure might make existing medical conditions worse, and describes emergency first aid procedures.

Usage, Handling, And Storage

Describes how to clean up an accidental spill, leak, or release, including special procedures. Tells you how to handle, store, and dispose of chemicals safely. Remember, if there is an accident, notify your supervisor immediately, and take care of it yourself only if you are trained to do so and are wearing the proper equipment.

Special Protection And Precautions

Explains special Personal Protective Equipment (PPE) and other equipment to use when working with the chemical, special procedures, extra health or safety information, signs that should be posted, and other information not covered in other sections.

©[illegible] PARLAY INTERNATIONAL

U.S. DEPARTMENT OF LABOR
Occupational Safety and Health Administration

Form Approved
OMB No. 44-R1387

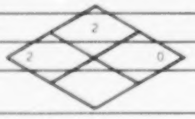
MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing, Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I

MANUFACTURER'S NAME HURST GRAPHICS, INC.	EMERGENCY TELEPHONE NO. 213-223-4121
ADDRESS (*Number, Street City, State and ZIP Code*) 2500 San Fernando Road, Los Angeles, California 90065	
CHEMICAL NAME AND SYNONYMS Hurst No. 116	TRADE NAME SYNONYMS Rubber Rejuvenator
CHEMICAL FAMILY Chlorinated & Oxygenated Hydrocarbon Mixture	FORMULA N/A

SECTION II — HAZARDOUS INGREDIENTS



PAINTS, PRESERVATIVES & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS			BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS	100	683*	FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES		mg/m	OTHERS		
OTHERS					

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES	%	TLV (Units)
Contains chlorinated compounds		
Contains less than 0.045% BENZENE		
*Assuming all of mixture evaporates; based on 1975 TLV		
values; equivalent to 316 ppm.		

SECTION III — PHYSICAL DATA

BOILING POINT (°F)	110 245	SPECIFIC GRAVITY (H_2O=1)	0.94
VAPOR PRESSURE (mm Hg.) @ 68°F	220	PERCENT VOLATILE BY VOLUME (%)	100
VAPOR DENSITY (AIR=1)	3.1	EVAPORATION RATE (_____ = 1)	14.5
SOLUBILITY IN WATER	Slight		

APPEARANCE AND ODOR Clear, red, characteristic chlorinated-oxygenated petroleum odor.

SECTION IV — FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used) No flash to boil in virgin solvent, TCC	FLAMMABLE LIMITS N/A	Lel	Uel

EXTINGUISHING MEDIA
Foam, CO_2, dry chemical

SPECIAL FIRE FIGHTING PROCEDURES
Wear self-contained breathing apparatus. Water may be unsuitable, except as a cooling and dilution medium.

UNUSUAL FIRE AND EXPLOSION HAZARDS

Page (1)

(Continued on reverse side)

Form OSHA 20
Rev. May 72

HURST GRAPHICS furnishes Material Safety Data Sheets based on information from its raw material suppliers. HURST GRAPHICS does not guarantee the accuracy of the data therein, nor assume liability of any kind in releasing Material Safety Data Sheets. Caution is advised with regard to Threshold Limit Value (TLV), because these values are constantly being revised (both higher and lower).

HANDOUT 2

SECTION V — HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE

683 mg/m^3

EFFECTS OF OVEREXPOSURE

Drying of skin. Eye irritation. Excessive inhalation may cause anesthesia, headache, dizziness, nausea, upper respiratory irritation.

EMERGENCY AND FIRST AID PROCEDURES

INHALATION: Remove to fresh air, apply artificial respiration if necessary. Call a physician. SKIN CONTACT: Wash with mild soap and water, apply mild skin cream; in severe cases, call a physician. EYE CONTACT: Flush with water, call a physician. INGESTION: Call a physician.

SECTION VI — REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Heat, sparks, open flame, fire

INCOMPATABILITY *(Materials to avoid)*

Strong oxidizing agents, strong acids or bases, selected amines.

HAZARDOUS DECOMPOSITION PRODUCTS

Thermal decomposition may yield carbon monoxide and/or carbon dioxide.

HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	

SECTION VII — SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Flush with water into a retaining area or container. Avoid sparks, fire or hot metal surfaces. Small quantities may be absorbed into an appropriate absorbant.

WASTE DISPOSAL METHOD

Incinerate under safe conditions or dispose of in accordance with applicable local, state and federal regulations.

SECTION VIII — SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION *(Specify type)*

Depends on concentration above time-weighted TLV; cartridge respirator or gas mask.

VENTILATION	LOCAL EXHAUST Whatever is sufficient to keep workroom	SPECIAL
	MECHANICAL *(General)* Concentration below the TLV	OTHER

PROTECTIVE GLOVES	Impermeable	EYE PROTECTION	Chemical goggles

OTHER PROTECTIVE EQUIPMENT

Apron. Barrier cream.

SECTION IX — SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

Keep cool and away from sources of ignition. Use with adequate ventilation. Avoid prolonged or repeated personal contact.

OTHER PRECAUTIONS

Do not use copper.

SHOP SAFETY
UNIT II

ASSIGNMENT SHEET #1 — COMPLETE A STUDENT SAFETY PLEDGE FORM

Name ____ Score ________________

________________________, who is enrolled in Vocational ________________________
__________________________, will as a part of his/her shop experience, operate machines, providing that the parent or guardian gives written permission.

It is important that each student will be given proper instruction, both in the use of the equipment and in correct safety procedures concerning it, before being allowed to operate it. The student must assume responsibility for following safe practices, and we therefore ask that the student subscribe to the following safety pledge.

1. I promise to follow all safety rules for the shop.
2. I promise never to use a machine without first having permission from the instructor.
3. I will not ask permission to use a particular machine unless I have been instructed in its use, and have scored 100% on the safety test for that machine.
4. I will report any accident or injury to the teacher immediately.

Date ______________ Student's signature ______________________________

I hereby give my consent to allow my son or daughter to operate all machines and equipment necessary in carrying out the requirements of the course in which he or she is enrolled.

Date ______________ Parent's signature ______________________________

Parents are cordially invited to visit the shop to inspect the machines and to see them in operation.

SHOP SAFETY
UNIT II

ASSIGNMENT SHEET #2 — SURVEY THE SHOP AND IDENTIFY CORRECT SAFETY PRACTICES

Name ______________________ Score __________

A. What safety practices are being used in your shop to promote general safety?

____

____

____

B. What practices are used to maintain an orderly shop?

____

____

____

C. Where is your shop fire extinguisher located? What type is it, and on what kinds of fires may it be used?

____

____

D. Where is your shop first aid kit located? Who is permitted to use it?

____

____

E. What equipment and machines in your shop must you have separate safety tests on before you are allowed to operate them?

____

____

F. What personal safety protection devices or clothing must you wear while working in the shop?

____

____

ASSIGNMENT SHEET #2

G. What procedure should you follow if you see an accident happen?

____

____

____

SHOP SAFETY
UNIT II

ASSIGNMENT SHEET #3 — READ A MATERIAL SAFETY DATA SHEET

Name ______________________________ Score ____________

Directions: Carefully read through the following Material Safety Data Sheet and then use the MSDS to answer these questions.

1. What is the name of the substance? ______________________________

____

2. What potentially hazardous ingredients does it contain?

____

____

3. What possible injury could occur from external contact?

____

4. Is this substance heavier or lighter than water? ____________________

5. What is its boiling range? ______________________________

6. What is its OSHA flammability classification? ____________________

7. How should first aid for eye contact be administered?

____

____

8. Is this a stable product? ______________________________

9. What kind of protective equipment should be used when handling this substance?

____

____

10. What instructions are given for handling and storage of this substance?

____

____

ASSIGNMENT SHEET #3

MATERIAL SAFETY DATA SHEET
FOR PRINTING INK AND RELATED MATERIALS

Information on this form is proprietary information
solely for the use of our customers

DATE OF PREP. 11-25-85 PREPARED BY S. L. MAKI

HAZARD RATINGS
Minimal..... 0
Slight........ 1
Moderate.. 2
Severe...... 4

HEALTH	3
FLAMMABILITY	0
REACTIVITY	0

SECTION I

MANUFACTURER'S NAME: Flint Ink Corporation
STREET ADDRESS: 25111 Glendale Avenue
CITY, STATE AND ZIP CODE: Detroit, MI 48239-2689
EMERGENCY TELEPHONE NUMBER: (313) 538-6800
PRODUCT CLASS: Fountain Solution
TRADE NAME: MIRACLE "V-2020" CONCENTRATE
MANUFACTURER'S CODE IDENTIFICATION: UW-W-35,UW-W020

Section II — HAZARDOUS INGREDIENTS

Ingredient	Hazard Data
Ethylene Glycol	TLV-Vapor 50ppm. Vapor & mist may be irritation to the eyes. Ingestion may cause central nervous system depression and also can cause liver or kidney damage.
Alkaline Phosphates & Silicates	Eye & skin irritation.

Section III — PHYSICAL DATA

BOILING RANGE °F 215-220	VAPOR DENSITY: HEAVIER X vs. air LIGHTER _	LIQUID DENSITY: HEAVIER X vs. water LIGHTER _	TYPE OF ODOR Antifreeze
APPEARANCE Liquid	EVAPORATION RATE: FASTER _ vs. Butyl Acetate SLOWER X	PERCENT VOLATILE WT. 85-90%	

Section IV — FIRE & EXPLOSION DATA

FLAMMABILITY CLASSIFICATION
OSHA: Class IIIB
FLASH POINT °F: Greater than 200°F
LEL: 3.2% for Ethylene Glycol
DOT: Not regulated (Method Used): T.C.C.

EXTINGUISHING MEDIA:
X FOAM X ALCOHOL FOAM X CO2 X DRY CHEMICAL X WATER FOG X OTHER

UNUSUAL FIRE AND EXPLOSION HAZARDS
No fire hazard; nonflammable.

SPECIAL FIREFIGHTING PROCEDURES
Water may be used to cool containers to prevent pressure build-up.

ASSIGNMENT SHEET #3

SECTION V — HEALTH HAZARD DATA

EFFECTS OF OVEREXPOSURE

This material is an eye irritant. Prolonged or repeated contact with skin will cause irritation; very alkaline. DO NOT INGEST.

PRIMARY ROUTE(S) OF ENTRY: X DERMAL X INHALATION

EMERGENCY AND FIRST AID PROCEDURES Eye contact: Flush immediately with large amounts of water for at least 15 minutes. Contact physician. Skin contact: Wash affected areas with soap & water. Remove contaminated clothing. Ingestion: Drink 1 or 2 glasses of water to dilute. DO NOT INDUCE VOMITING. Contact physician; treat symptomatically.

Section VI — REACTIVITY DATA

PRODUCT STABILITY X STABLE X UNSTABLE

CONDITIONS TO AVOID
Contact with strong oxidizers.

SECTION VII — SPILL OR LEAK PROCEDURES

PROCEDURE WHEN MATERIAL SPILLED OR RELEASED
Flush area with water. Wipe up and dispose of in approved containers.

WASTE DISPOSAL METHOD
In accordance with local, state and federal regulations.

Section VIII — SPECIAL PROTECTION INFORMATION

VENTILATION Normal for work area.

PROTECTIVE GLOVES Recommended

RESPIRATORY PROTECTION Not normally required with adequate ventilation.

EYE PROTECTION Recommended

OTHER PROTECTIVE EQUIPMENT None

Section IX — SPECIAL PRECAUTIONS

HANDLING AND STORING

Keep containers closed when not in use.

OTHER PRECAUTIONS

For industrial use only.

THIS FORM IS AN INDUSTRY SERVICE BY THE NATIONAL ASSOCIATION OF PRINTING INK MANUFACTURERS, INC.
(Information on this form is supplied by the individual ink manufacturer)

NAPIM 4-35

SHOP SAFETY
UNIT II

ASSIGNMENT SHEET #4 — DRAW A FLOOR PLAN AND LOCATE SAFETY EQUIPMENT IN YOUR SHOP

Directions: On a separate piece of paper, sketch a floor plan of your shop; make it large enough to provide the space to indicate the location of all of the following:

1. Indicate the location of all emergency exits and label those locations **EE**.
2. Indicate where all fire extinguishers are located and label those locations **FE**.
3. Indicate where the eye wash station is located and label that location **EW**.
4. Indicate where the nearest telephone is located and label the location **T**, and beside it write the emergency telephone number.
5. Indicate where the first aid kit is located and label the location **First Aid**.
6. Indicate the reassembly point following a fire drill and show its approximate location with respect to the shop by labeling the location **RP**.
7. Indicate the safe shelter for severe weather and show its approximate location with respect to the shop by labeling the location **Safe Shelter**.
8. Indicate the location of the solvent disposal area and label the location **Solvents**.
9. Indicate the location of the combustible storage area and label the area **CS**.

SHOP SAFETY
UNIT II

ANSWERS TO ASSIGNMENT SHEETS

Assignment Sheet #1

The student should complete the safety pledge form.

Assignment Sheet #2

The student should answer all questions as they pertain to safety equipment and procedures in the school shop.

Assignment Sheet #3

1. Miracle "V-2020" Concentrate
2. Ethylene glycol, alkaline phosphates and silicates
3. Eye and skin irritation
4. Heavier
5. 215-220°F
6. Class IIIB
7. Flush with water for 15 minutes. Contact physician.
8. Yes
9. Protective gloves, eye protection
10. Keep containers closed when not in use

Assignment Sheet #4

The student's floor plan should accurately represent the school shop with all nine of the locations correctly located and properly identified. Labels should be checked carefully to test the student's ability to follow instructions. Neatness should also be considered.

SHOP SAFETY
UNIT II

TEST

Name ____________________ Score __________

1. Match the terms on the right with the correct definitions.

_____a. Immediate, temporary care given the victim of an accident or sudden illness until services of a physician can be obtained

_____b. State or condition of being safe; freedom from danger, risk, or injury

_____c. Any suddenly occurring, unintentional event which causes personal injury or property damage

_____d. Federal agency established to insure safe and sanitary working conditions for employees

_____e. Written or printed material concerning a hazardous chemical

_____f. Materials or liquids that catch fire easily

_____g. A potential source of danger

_____h. Statutory right of access to every public record of a state or federal agency

1. Accident
2. Combustibles
3. First aid
4. Hazard
5. Material Safety Data Sheet
6. Occupational Safety and Health Administration
7. Right-To-Know
8. Safety

2. Select true statements concerning the proper safety rules to be practiced in the shop by placing an "X" next to the true statements.

_____a. You may keep equipment running when you leave if you are only going to be gone for a short time.

_____b. Remove ties, scarves, loose clothing, and jewelry before operating a press or any power equipment.

_____c. Use the correct tools and equipment when doing a job.

_____d. Do not stop a machine before reaching in near the moving parts because stopping it will waste time.

_____e. Ear plugs are never needed.

_____f. Horseplay is permitted in the classroom but not in the shop.

TEST

_____g. Do not sit or lean on light tables.

_____h. It is all right to use unfamiliar equipment.

_____i. Conduct yourself in a manner conducive to safe shop practices.

3. Complete the following sentences by placing the following words in the correct spaces.

Cleanup
Combustible
Floors
Housekeeping
Machinery
Materials
Tools
Unsafe

a. Report any __________ condition in the shop immediately.

b. Arrange all __________ and equipment to permit safe and efficient operation.

c. Keep __________ and supplies safely stacked and stored.

d. Keep all __________ and accessories in cabinets or tool racks.

e. Dispose of or store all __________ materials in safe containers.

f. Keep all __________ clean and free of debris at all times.

g. Check that adequate __________ equipment and cleaning materials are on hand to insure that maximum cleaning efficiency can be maintained.

h. Participate in daily __________ periods.

4. Select true statements concerning toxic chemical safety rules by placing an "X" next to the true statements.

_____a. Work in a well-ventilated area.

_____b. Wear protective gloves and aprons when handling chemicals.

_____c. Safety goggles are not needed.

_____d. Use unlabeled products only if you know what is in the container.

_____e. Store chemicals on the highest shelves.

5. List four types of information on a Material Safety Data Sheet.

a. ____

b. ____

c. ____

d. ____

TEST

6. List the five kinds of safety hazards.

   a. ______________________________

   b. ______________________________

   c. ______________________________

   d. ______________________________

   e. ______________________________

7. Select true statements concerning things OSHA expects of an employer by placing an "X" next to the true statements.

   _____a. Provide a hazard-free workplace and comply with occupational safety and health standards.

   _____b. Use properly color-coded signs to warn of danger.

   _____c. Report within two weeks to OSHA any accident which is fatal or hospitalizes five or more workers.

   _____d. Obtain a Material Safety Data Sheet for each hazardous chemical present in the workplace and make sure the MSDSs are readily accessible to employees.

8. Select true statements concerning things OSHA expects of an employee by placing an "X" next to the true statements.

   _____a. Read the OSHA poster #2203 and comply with its standards.

   _____b. Ignore employer safety and health rules.

   _____c. Report to OSHA any hazardous working situations which you feel the employer has not attended to properly.

TEST

9. Match the colors of the safety color code on the right with their correct designations.

_____a. Designates location of safety and first aid equipment

_____b. Designates caution and marks physical hazards

_____c. Designates dangerous parts of equipment which may cut, crush, shock, or otherwise injure

_____d. Designates location of fire fighting equipment

_____e. Designates caution against starting equipment while it is being worked on or use of defective equipment

_____f. Highlights an area that might otherwise not be noticed

1. Blue
2. Green
3. Ivory
4. Orange
5. Red
6. Yellow

10. Match the classes of fires on the right with the correct definitions.

_____a. Fires that involve flammable liquids

_____b. Fires that involve ordinary combustible materials

_____c. Fires that involve electrical or electronic equipment

_____d. Fires that involve combustible metals

1. Class A
2. Class B
3. Class C
4. Class D

11. Match the types of fire extinguishers on the right with their uses.

_____a. Stand back ten feet, hold upright, and direct at the base of fire, sweeping from side to side; use for class B or class C fires.

_____b. Spray above fire, allowing to fall lightly on the fire; use for class A or class B fires.

1. Carbon dioxide
2. Dry chemical
3. Foam
4. Halon
5. Pump tank

TEST

_____c. Place foot on lever and pump while directing stream at base of fire; use for class A fires only.

_____d. Direct discharge as close to fire as possible, first at the edge of flames, then gradually forward and upward; use for class B or class C fires.

_____e. Direct at the base of the flames, then follow up by directing at remaining materials that are burning; use for class A, class B, or class C fires.

12. List the general guidelines for first aid emergencies.

    a. ____

    b. ____

    c. ____

    d. ____

    e. ____

(NOTE: If the following activities have not been accomplished prior to the test, ask your instructor when they should be completed.)

13. Complete a student safety pledge form. (Assignment Sheet #1)

14. Survey the shop and identify correct safety practices. (Assignment Sheet #2)

15. Read a Material Safety Data Sheet. (Assignment Sheet #3)

16. Draw a floor plan and locate safety equipment in your shop. (Assignment Sheet #4)

SHOP SAFETY
UNIT II

ANSWERS TO TEST

1.

a.	3	e.	5
b.	8	f.	2
c.	1	g.	4
d.	6	h.	7

2. b, c, g, i

3. a. Unsafe
   b. Machinery
   c. Materials
   d. Tools
   e. Combustible
   f. Floors
   g. Housekeeping
   h. Cleanup

4. a, b

5. Any four of the following:

   a. Chemical name
   b. Hazardous ingredients/chemical identity
   c. Physical characteristics
   d. Fire and explosion data
   e. Reactivity
   f. Health hazards
   g. Usage, handling, and storage
   h. Special protection and precautions

6. Mechanical
   Fire
   Chemical
   Light
   Noise

7. a, b, d

8. a, c,

ANSWERS TO TEST

9. a. 2
   b. 6
   c. 4
   d. 5
   e. 1
   f. 3

10. a. 2
    b. 1
    c. 3
    d. 4

11. a. 4
    b. 3
    c. 5
    d. 1
    e. 2

12. a. Turn off power.
    b. Administer first aid.
    c. Reassure the injured person that everything possible is being done.
    d. Report all accidents and injuries to your instructor or jobsite supervisor.
    e. Make accurate notes about the accident.

13.-16. Evaluated to the satisfaction of the instructor

SHOP ORGANIZATION
UNIT III

UNIT OBJECTIVE

After completion of this unit, the student should be able to name production steps of a typical printing job and describe the duties of each worker. Competencies will be demonstrated by completing the assignment sheets and the unit test with a minimum score of 85 percent.

SPECIFIC OBJECTIVES

After completion of this unit, the student should be able to:

1. Name five main concerns of successful printing plant management.
2. Complete statements concerning strategies a manager can use to operate a graphic arts business.
3. Match job titles with descriptions of job duties.
4. Arrange in proper sequence the production steps of a typical printing job.
5. List items essential to proper job production control.
6. Arrange in proper sequence the steps for initiating a printing job.
7. Make an organizational chart of the school print shop. (Assignment Sheet #1)
8. Draw a floor plan locating production areas in the school print shop. (Assignment Sheet #2)

SHOP ORGANIZATION
UNIT III

SUGGESTED ACTIVITIES

A. Obtain additional materials and/or invite resource people to class to supplement/reinforce information provided in this unit of instruction.

(NOTE: This activity should be completed prior to the teaching of this unit.)

B. Make transparencies from the transparency masters included with this unit.

C. Provide students with objective sheet.

D. Discuss unit and specific objectives.

E. Provide students with information and assignment sheets.

F. Discuss information and assignment sheets.

(NOTE: Use the transparencies to enhance the information as needed.)

G. Integrate the following activities throughout the teaching of this unit:

  1. Discuss the chain of command for your school.
  2. Invite a panel of managers from different types of printing firms to talk about chains of command so that students may see different organizational structures.
  3. Invite a guest speaker to talk about how computers are useful in the graphic arts industry.
  4. Take a field trip to a high tech printing plant to show how computers are used in job control and production.
  5. Meet individually with students to evaluate their progress through this unit of instruction, and indicate to them possible areas for improvement.

H. Give test.

I. Evaluate test.

J. Reteach if necessary.

REFERENCES USED IN WRITING THIS UNIT

A. Cogoli, John E. *Photo-Offset Fundamentals.* Bloomington, IL: McKnight Publishing Co., 1980.

REFERENCES USED IN WRITING THIS UNIT

B. Dennis, Ervin. *Lithographic Technology.* Indianapolis, IN: The Bobbs-Merrill Company, Inc., 1980.

C. Spence, Dr. William P., and Dr. David G. Vequist. *Graphic Reproduction.* Peoria, IL: Chas. A. Bennett, Co. Inc., 1980.

SUGGESTED SUPPLEMENTAL MATERIAL

A. *Pocket Pal the Movie: An Introduction to Printing*

Available in VHS from:

International Paper Co.
New York, NY

B. *Printing*, CS-163

Available in VHS and Beta from:

Morris Video
413 Avenue G, #1
P.O. Box 443
Redondo Beach, CA 90277
1-800-843-3606

SHOP ORGANIZATION
UNIT III

INFORMATION SHEET

I. **Main concerns of successful printing plant management**

A. Safety

B. Cleanliness

C. Efficiency of operation

D. Quality

E. Profit

(NOTE: Keep in mind that wasted materials cost money.)

II. **Strategies a manager can use to operate a graphic arts business**

A. Use organization manuals to tell about the firm.

B. Provide organizational charts that show the chain of command and where people fit into the firm.

C. Set policies and rules to convey what employees can and cannot do.

D. Provide job descriptions to define workers' tasks.

E. Allow for two-way communication in which the manager talks to employees and employees may talk to the manager.

F. Use recordkeeping systems that permit quick retrieval of information about current and completed printing jobs.

(NOTE: A company cannot run itself. Good management is vital to the success of a graphic arts business.)

III. **Job titles and descriptions of job duties**

A. Manager—Organizes and supervises production in the shop or plant

(NOTE: This role may also be titled supervisor, owner, superintendent, or foreman.)

B. Sales and customer service representatives—Initiate job orders and maintain good customer relations during and after the job

C. Estimator—Estimates the total cost of a printing job

D. Copywriters—Write the copy for printing jobs

INFORMATION SHEET

E. Design personnel—Plan and arrange type and visual elements for the printing job

F. Photographer—Provides photographs and special photographic illustrations for jobs

G. Artists—Provide special art and illustrations for printing jobs

H. Mark-up personnel—Copyfit and mark the type, style, and size designations for printing

I. Typesetters—Compose or set type according to mark-up specifications

J. Paste-up personnel—Assemble elements of a layout for reproduction

K. Proofreaders—Read the proofs at various stages of production to make sure there are no mistakes

L. Camera operators—Provide the film negative of the printing job

(NOTE: Camera operators also make proofs.)

M. Strippers—Tape the negatives in their proper place on the printing mask or flat

N. Platemakers—Expose the plate and develop it so it is ready for the press

(NOTE: Platemakers also proof materials.)

O. Press operators—Prepare press for operation and run the finished plate on the press

P. Feeder and helper—Help press operator load paper table and unload delivery table

Q. Bindery personnel—Complete bindery work, such as collating, folding, and stitching

R. Shipping personnel—Pack, label, and deliver completed jobs

S. Filing personnel—File flats and plates in customer job files

T. Billing personnel—Make out invoices and bill customers for completed work

(NOTE: As changes in technology affect the graphic arts industry, some new job titles and duties may result.)

IV. **Sequence of production steps of a typical printing job** (Transparency 1)

A. Sales and estimate

B. Job order

INFORMATION SHEET

C. Copywriter

D. Design

E. Mark-up

F. Typesetting (composition)

G. Proofreading

H. Paste-up

I. Proofreading

J. Camera

K. Stripping

L. Pre-press proofing

M. Platemaking

N. Presswork

O. Binding and finishing

P. Quality control

Q. Packaging, shipping, and delivery

R. Billing

(NOTE: Computers permit the integration of different production steps.)

V. **Items essential to proper job production control** (Transparencies 2, 3, and 4)

A. Job ticket

B. Log book with job numbers

C. Color code tag for production board

D. Identified job material folder (or envelope)

E. Production board

(NOTE: Computers are increasingly used in job control and business functions of printing plants.)

INFORMATION SHEET

VI. Proper sequence for initiating a printing job

A. Fill out the complete job order form.

B. Enter job in log book and assign number.

C. Fill out color code tag for production board.

(NOTE: The production board is an example; some organizations may use a different system.)

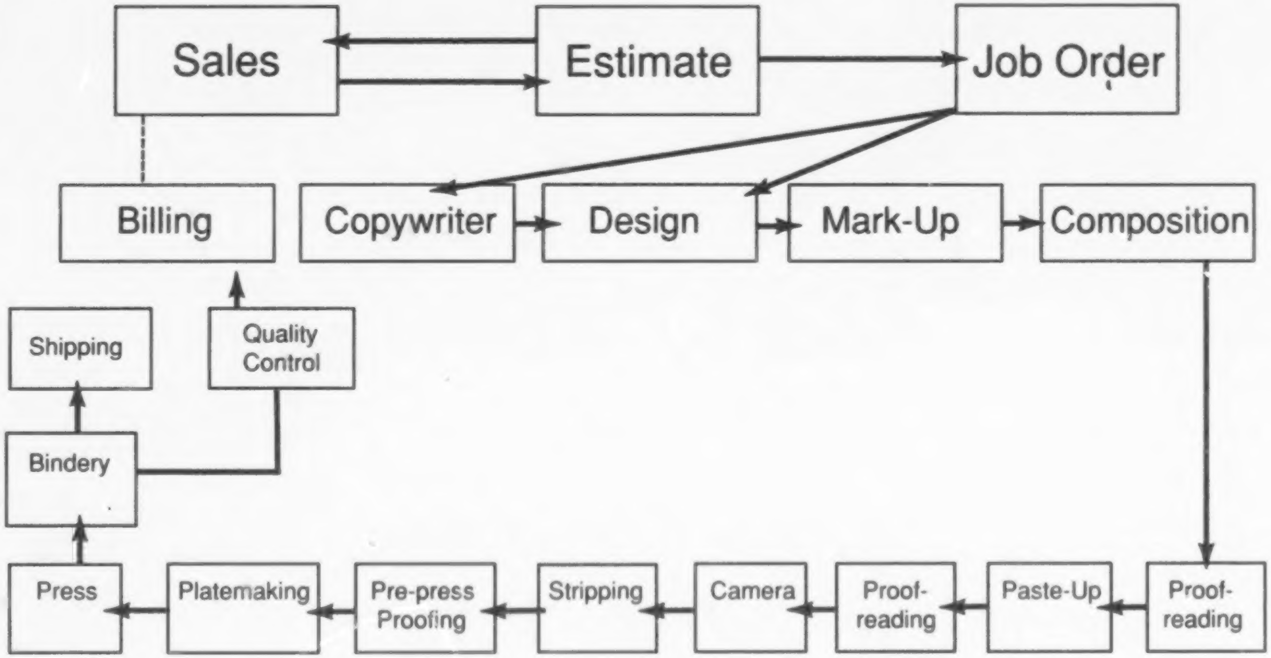
D. Mark material folder, insert job order and job material.

(NOTE: Be sure all material is complete and note specialty items needed for a job.)

E. Put folder in proper station of material job flow file. (Transparency 5)

F. Put color code tag on production board.

Production Flow Chart



Sales
Estimate
Job Order

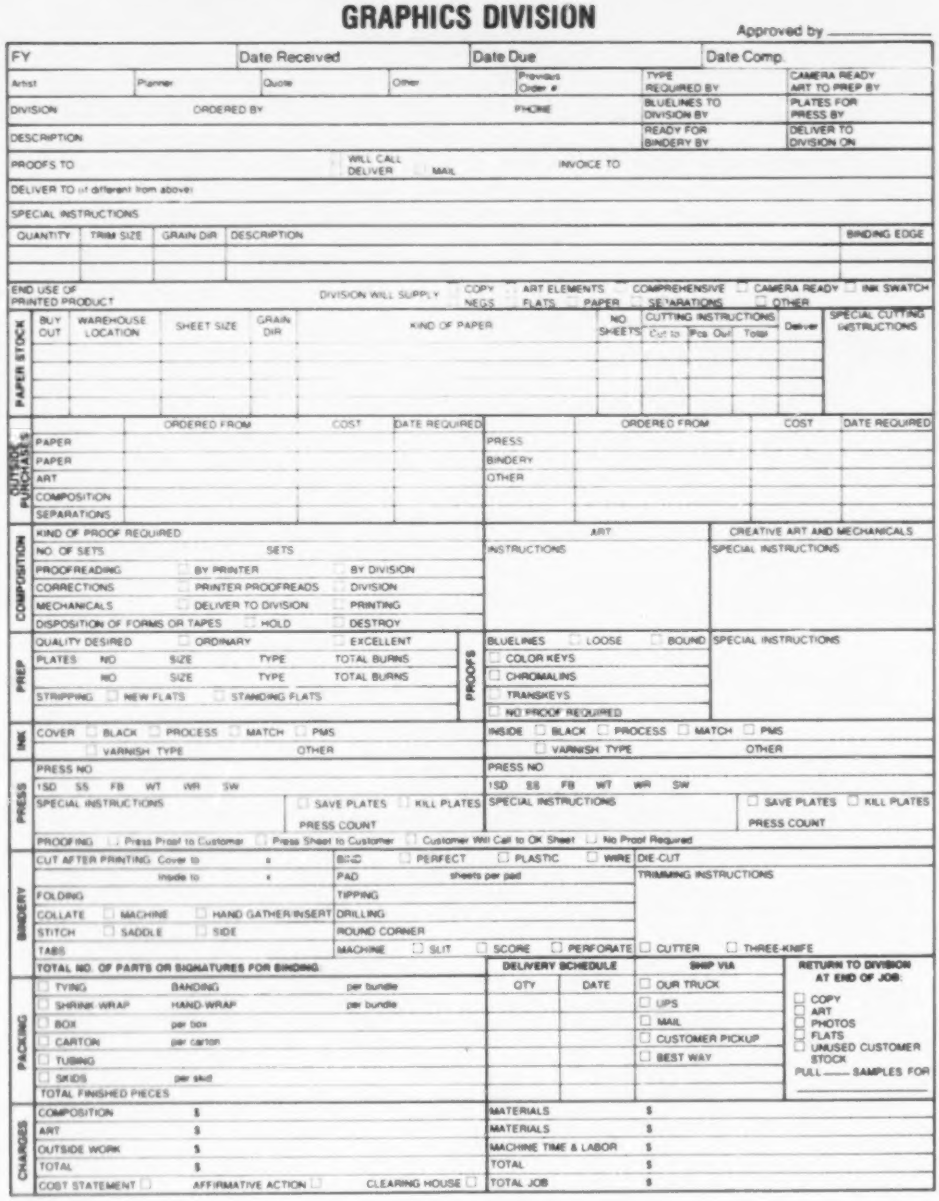
Billing
Copywriter
Design
Mark-Up
Composition

Shipping
Quality Control

Bindery

Press
Platemaking
Pre-press Proofing
Stripping
Camera
Proof-reading
Paste-Up
Proof-reading

Essential Items in Job Production Control



GRAPHICS DIVISION

Approved by ______

FY		Date Received		Date Due		Date Comp.
Artist	Planner	Quote	Other	Previous Order #	TYPE REQUIRED BY	CAMERA READY ART TO PREP BY
DIVISION	ORDERED BY			PHONE	BLUELINES TO DIVISION BY	PLATES FOR PRESS BY
DESCRIPTION					READY FOR BINDERY BY	DELIVER TO DIVISION ON

PROOFS TO ☐ WILL CALL ☐ DELIVER ☐ MAIL INVOICE TO

DELIVER TO (if different from above)

SPECIAL INSTRUCTIONS

QUANTITY	TRIM SIZE	GRAIN DIR	DESCRIPTION	BINDING EDGE

END USE OF PRINTED PRODUCT

DIVISION WILL SUPPLY ☐ COPY ☐ NEGS ☐ ART ELEMENTS ☐ FLATS ☐ COMPREHENSIVE ☐ PAPER ☐ CAMERA READY ☐ SEPARATIONS ☐ INK SWATCH ☐ OTHER

PAPER STOCK

BUY OUT	WAREHOUSE LOCATION	SHEET SIZE	GRAIN DIR	KIND OF PAPER	NO SHEETS	CUTTING INSTRUCTIONS Cut to	Pcs Out	Total	Deliver	SPECIAL CUTTING INSTRUCTIONS

OUTSIDE PURCHASES

	ORDERED FROM	COST	DATE REQUIRED		ORDERED FROM	COST	DATE REQUIRED
PAPER				PRESS			
PAPER				BINDERY			
ART				OTHER			
COMPOSITION							
SEPARATIONS							

COMPOSITION

KIND OF PROOF REQUIRED

NO. OF SETS SETS

PROOFREADING ☐ BY PRINTER ☐ BY DIVISION

CORRECTIONS ☐ PRINTER PROOFREADS ☐ DIVISION

MECHANICALS ☐ DELIVER TO DIVISION ☐ PRINTING

DISPOSITION OF FORMS OR TAPES ☐ HOLD ☐ DESTROY

ART

INSTRUCTIONS

CREATIVE ART AND MECHANICALS

SPECIAL INSTRUCTIONS

PREP

QUALITY DESIRED ☐ ORDINARY ☐ EXCELLENT

PLATES NO SIZE TYPE TOTAL BURNS

NO SIZE TYPE TOTAL BURNS

STRIPPING ☐ NEW FLATS ☐ STANDING FLATS

PROOFS

BLUELINES ☐ LOOSE ☐ BOUND

☐ COLOR KEYS

☐ CHROMALINS

☐ TRANSKEYS

☐ NO PROOF REQUIRED

SPECIAL INSTRUCTIONS

INK

COVER ☐ BLACK ☐ PROCESS ☐ MATCH ☐ PMS

☐ VARNISH TYPE OTHER

INSIDE ☐ BLACK ☐ PROCESS ☐ MATCH ☐ PMS

☐ VARNISH TYPE OTHER

PRESS

PRESS NO

1SD SS FB WT WR SW

SPECIAL INSTRUCTIONS ☐ SAVE PLATES ☐ KILL PLATES

PRESS COUNT

PRESS NO

1SD SS FB WT WR SW

SPECIAL INSTRUCTIONS ☐ SAVE PLATES ☐ KILL PLATES

PRESS COUNT

PROOFING ☐ Press Proof to Customer ☐ Press Sheet to Customer ☐ Customer Will Call to OK Sheet ☐ No Proof Required

BINDERY

CUT AFTER PRINTING Cover to x

Inside to x

FOLDING

COLLATE ☐ MACHINE ☐ HAND GATHER/INSERT

STITCH ☐ SADDLE ☐ SIDE

TABS

BIND ☐ PERFECT ☐ PLASTIC ☐ WIRE

PAD sheets per pad

TIPPING

DRILLING

ROUND CORNER

MACHINE ☐ SLIT ☐ SCORE ☐ PERFORATE

DIE-CUT

TRIMMING INSTRUCTIONS

☐ CUTTER ☐ THREE-KNIFE

TOTAL NO. OF PARTS OR SIGNATURES FOR BINDING

PACKING

☐ TYING BANDING per bundle

☐ SHRINK-WRAP HAND-WRAP per bundle

☐ BOX per box

☐ CARTON per carton

☐ TUBING

☐ SKIDS per skid

TOTAL FINISHED PIECES

DELIVERY SCHEDULE QTY	DATE	SHIP VIA
		☐ OUR TRUCK
		☐ UPS
		☐ MAIL
		☐ CUSTOMER PICKUP
		☐ BEST WAY

RETURN TO DIVISION AT END OF JOB:

☐ COPY

☐ ART

☐ PHOTOS

☐ FLATS

☐ UNUSED CUSTOMER STOCK

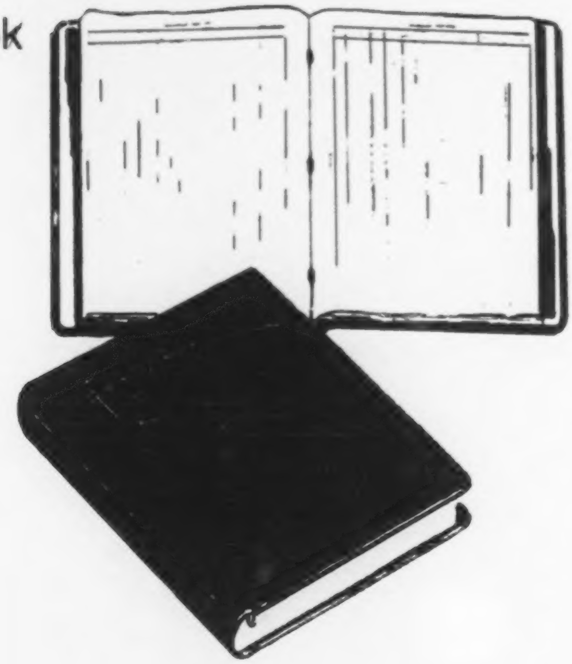
PULL ___ SAMPLES FOR

CHARGES

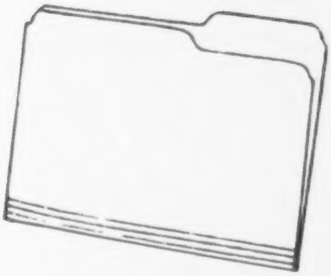
COMPOSITION	$	MATERIALS	$
ART	$	MATERIALS	$
OUTSIDE WORK	$	MACHINE TIME & LABOR	$
TOTAL	$	TOTAL	$
COST STATEMENT ☐ AFFIRMATIVE ACTION ☐ CLEARING HOUSE ☐		TOTAL JOB	$

Sample Job Ticket

Essential Items in Job Production Control
(Continued)

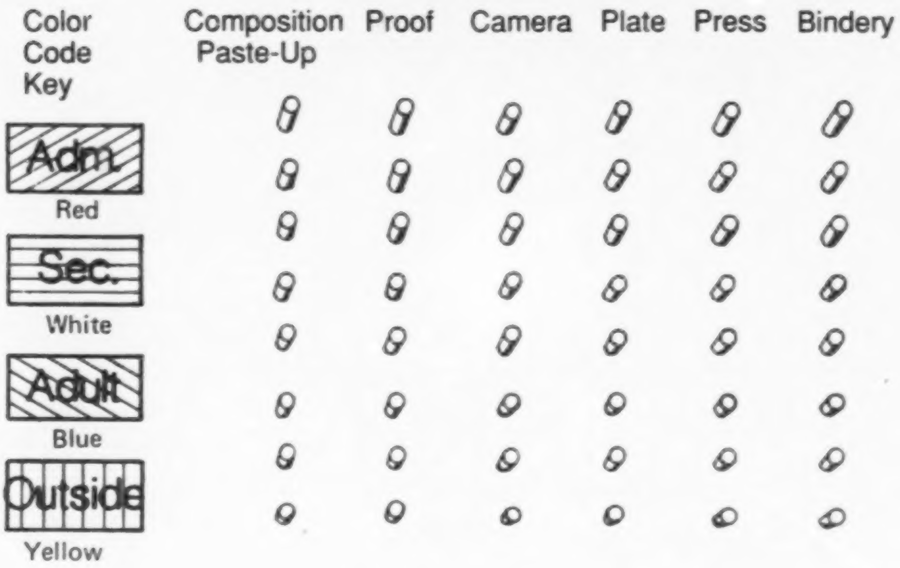


Log Book

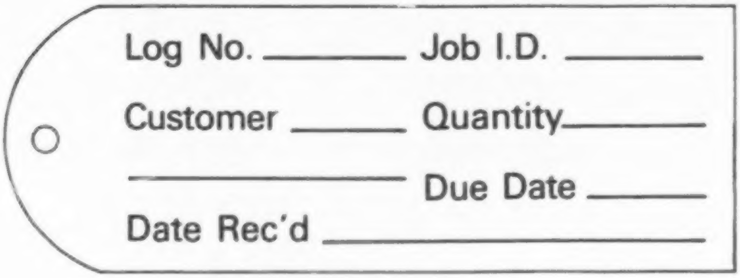


Job Material Folder

Essential Items in Job Production Control
(Continued)


Color Code Key
Composition Paste-Up
Proof
Camera
Plate
Press
Bindery
Adm.
Red
Sec.
White
Adult
Blue
Outside
Yellow

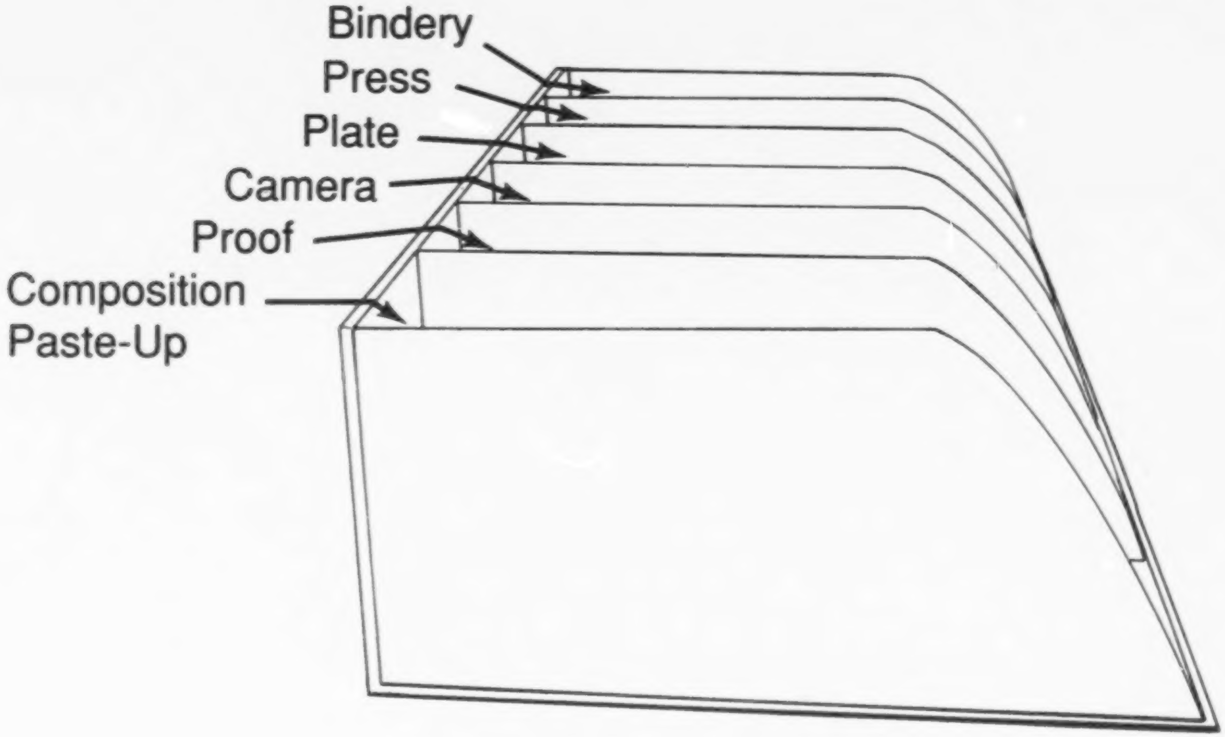
Production Board



Log No. ________ Job I.D. ________
Customer ______ Quantity________
____________________ Due Date ______
Date Rec'd ____________________

Colored Index Tag

Material Job Flow File


Bindery
Press
Plate
Camera
Proof
Composition
Paste-Up

SHOP ORGANIZATION
UNIT III

ASSIGNMENT SHEET #1 — MAKE AN ORGANIZATIONAL CHART OF THE SCHOOL PRINT SHOP

Name ______________________ Score __________

Directions: Using a block diagram, make an organizational chart showing all departments and work station assignments in your school printing shop. Indicate the following:

1. School administration
2. Instructor
3. Instructor's aide
4. Shop supervisor (student)
5. Assistant shop supervisor (student)
6. Crew chiefs (students)
7. Work and clean-up stations (students)

SHOP ORGANIZATION
UNIT III

ASSIGNMENT SHEET #2 — DRAW A FLOOR PLAN LOCATING PRODUCTION AREAS IN THE SCHOOL PRINT SHOP

Name ______________________________ Score ____________

Directions: On a separate sheet of paper, sketch and label a floor plan of your school print shop; make it large enough to provide the space to indicate the location of all of the following:

1. Job order department
2. Copywriting, design, and mark-up
3. Typesetting
4. Proofreading
5. Paste-up
6. Camera/darkroom
7. Stripping
8. Platemaking
9. Presses
10. Bindery
11. Storeroom

With arrows, indicate on your floor plan the production flow from the beginning of a job to the end. Based on the production flow, would you change anything to increase efficiency? Give your reasons.

____

____

____

____

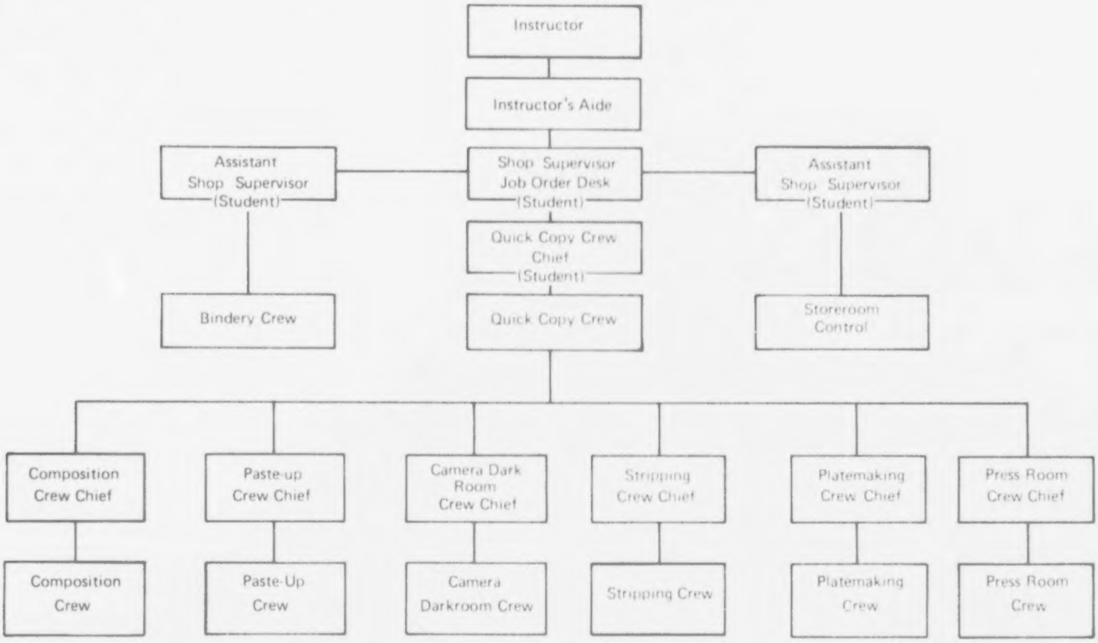
____

SHOP ORGANIZATION
UNIT III

ANSWERS TO ASSIGNMENT SHEETS

Assignment Sheet #1

The answer should look like the schematic below:


Instructor
Instructor's Aide
Assistant Shop Supervisor (Student)
Shop Supervisor Job Order Desk (Student)
Assistant Shop Supervisor (Student)
Quick Copy Crew Chief (Student)
Bindery Crew
Quick Copy Crew
Storeroom Control
Composition Crew Chief
Paste-up Crew Chief
Camera Dark Room Crew Chief
Stripping Crew Chief
Platemaking Crew Chief
Press Room Crew Chief
Composition Crew
Paste-Up Crew
Camera Darkroom Crew
Stripping Crew
Platemaking Crew
Press Room Crew

Assignment Sheet #2

The student should accurately place the production areas of the print shop on a floor plan and correctly indicate production flow. Suggested changes in the layout of the shop should be substantiated with valid reasons.

SHOP ORGANIZATION
UNIT III

TEST

Name ______________________________ Score ______________

1. Name five main concerns of successful printing plant management.

   a. ____

   b. ____

   c. ____

   d. ____

   e. ____

2. Complete the following statements concerning strategies a manager can use to operate a graphic arts business by placing the words below in the correct spaces.

Chain of command	Communication	Information
Manuals	Policies	Tasks

   a. Use organization ______________ to tell about the firm.

   b. Provide organizational charts that show the ___________ and where people fit into the firm.

   c. Set ______________ and rules to convey what employees can and cannot do.

   d. Provide job descriptions to define workers' ________________.

   e. Allow for two-way ____________________ in which the manager talks to employees and employees may talk to the manager.

   f. Use recordkeeping systems that permit quick retrieval of ______________ about current and completed printing jobs.

TEST

3. Match the job titles on the right with the correct description of job duties.

_____a. Organizes and supervises production in the shop or plant

_____b. Initiate job orders and maintain good customer relations during and after the job

_____c. Estimates the total cost of a printing job

_____d. Write the copy for printing jobs

_____e. Plan and arrange type and visual elements for the printing job

_____f. Provides photographs and special photographic illustrations for jobs

_____g. Provide special art and illustrations for printing jobs

_____h. Copyfit and mark the type, style, and size designations for printing jobs

_____i. Compose or set type according to mark-up specifications

_____j. Assemble elements of a layout for reproduction

_____k. Read the proofs at various stages of production to make sure there are no mistakes

_____l. Provide the film negative of the printing job

_____m. Tape the negatives in their proper place on the printing mask or flat

_____n. Expose the plate and develop it so it is ready for the press

_____o. Prepare press for operation and run the finished plate on the press

_____p. Help press operator load paper table and unload delivery table

1. Artists
2. Billing personnel
3. Bindery personnel
4. Camera operators
5. Copywriters
6. Design personnel
7. Estimator
8. Feeder and helper
9. Filing personnel
10. Manager
11. Mark-up personnel
12. Paste-up personnel
13. Photographer
14. Platemakers
15. Press operators
16. Proofreaders
17. Sales and customer service representatives
18. Shipping personnel
19. Strippers
20. Typesetters

TEST

_____q. Complete bindery work, such as collating, folding, and stitching

_____r. Pack, label, and deliver completed jobs

_____s. File flats and plates in customer job files

_____t. Make out invoices and bill customers for completed work

4. Arrange in proper sequence the production steps of a typical printing job.

_____a. Presswork

_____b. Stripping

_____c. Proofreading

_____d. Sales and estimate

_____e. Billing

_____f. Binding and finishing

_____g. Quality control

_____h. Paste-up

_____i. Typesetting (composition)

_____j. Mark-up

_____k. Job order

_____l. Copywriter

_____m. Pre-press proofing

_____n. Packaging, shipping, and delivery

_____o. Design

_____p. Platemaking

_____q. Proofreading

_____r. Camera

TEST

5. List three items essential to proper job production control.

   a. ______________________________

   b. ______________________________

   c. ______________________________

6. Arrange in proper sequence the steps for initiating a printing job.

   _____a. Put color code tag on production board.

   _____b. Enter job in log book and assign number.

   _____c. Fill out color code tag for production board.

   _____d. Fill out complete job order form.

   _____e. Put folder in proper station of material job flow file.

   _____f. Mark material folder, insert job order and job material.

(NOTE: If the following activities have not been accomplished prior to the test, ask your instructor when they should be completed.)

7. Make an organizational chart of the school print shop. (Assignment Sheet #1)

8. Draw a floor plan locating production areas in the school print shop. (Assignment Sheet #2)

SHOP ORGANIZATION
UNIT III

ANSWERS TO TEST

1.
   a. Safety
   b. Cleanliness
   c. Efficiency of operation
   d. Quality
   e. Profit

2.
   a. Manuals
   b. Chain-of-command
   c. Policies
   d. Tasks
   e. Communication
   f. Information

3.	a.	10	f.	13	k.	16	p.	8
	b.	17	g.	1	l.	4	q.	3
	c.	7	h.	11	m.	19	r.	18
	d.	5	i.	20	n.	14	s.	9
	e.	6	j.	12	o.	15	t.	2

4.	a.	14	f.	15	k.	2	p.	13
	b.	11	g.	16	l.	3	q.	7 or 9
	c.	7 or 9	h.	8	m.	12	r.	10
	d.	1	i.	6	n.	17		
	e.	18	j.	5	o.	4		

5. Any three of the following:
   a. Job ticket
   b. Log book with job numbers
   c. Color code tag for production board
   d. Identified job material folder (or envelope)
   e. Production board

6.	a.	6	d.	1
	b.	2	e.	5
	c.	3	f.	4

7 & 8. Evaluated to the satisfaction of the instructor

PRINTING PROCESSES
UNIT IV

UNIT OBJECTIVE

After completion of this unit, the student should be able to identify the printing process used on printed pieces, identify the components of the offset press, and test the ink-water principle on an offset plate. Competencies will be demonstrated by completing the assignment sheets, job sheet, and the unit tests with a minimum score of 85 percent.

SPECIFIC OBJECTIVES

After completion of this unit, the student should be able to:

1. Match terms related to printing processes with the correct definitions.
2. Select true statements concerning major printing processes.
3. Arrange in order the principal pre-press steps in offset printing.
4. Select true statements concerning the basic offset printing process.
5. Match the major printing processes with their advantages and uses.
6. Match the specialized printing processes with the correct descriptions.
7. Match finishing operations with the correct descriptions.
8. Name types of material on which printing is done.
9. Name methods of feeding paper into the press.
10. Identify printing processes used to reproduce different printed pieces. (Assignment Sheet #1)
11. Describe the offset printing process. (Assignment Sheet #2)
12. Demonstrate the ability to test the ink-water principle on an offset plate. (Job Sheet #1)

PRINTING PROCESSES
UNIT IV

SUGGESTED ACTIVITIES

A. Obtain additional materials and/or invite resource people to class to supplement/reinforce information provided in this unit of instruction.

(NOTE: This activity should be completed prior to the teaching of this unit.)

B. Make transparency from the transparency master included with this unit.

C. Provide students with objective sheet.

D. Discuss unit and specific objectives.

E. Provide students with information and assignment sheets.

F. Discuss information and assignment sheets.

(NOTE: Use the transparency to enhance the information as needed.)

G. Provide students with job sheet.

H. Discuss and demonstrate the procedures outlined in the job sheet.

I. Integrate the following activities throughout the teaching of this unit:

1. Tour the school and make a list of printing processes used. Ask students if they think these are the best for the purpose.
2. Give a demonstration of printing processes used in your shop.
3. Have students find out what types of printing processes are used by plants in your community.
4. Arrange a field trip to observe as many processes as possible.
5. Meet individually with students to evaluate their progress through this unit of instruction, and indicate to them possible areas for improvement.

J. Give test.

K. Evaluate test.

L. Reteach if necessary.

REFERENCES USED IN WRITING THIS UNIT

A. Baird, Russell N., Arthur T. Turnbull and Duncan McDonald. *The Graphics of Communication*. New York, NY: Holt, Rinehart and Winston, 1987.

REFERENCES USED IN WRITING THIS UNIT

B. Cogoli, John E., *Photo-Offset Fundamentals.* Bloomington, IL: McKnight Publishing Co., 1980.

C. Crow, Wendall C. *Communication Graphics.* Englewood Cliffs, NJ: Prentice-Hall, 1986.

D. *The Lithographers Manual,* Ed. Raymond N. Blair. Pittsburgh, PA: Graphic Arts Technical Foundation, 1983.

E. *Pocket Pal: A Graphic Arts Production Handbook.* New York, NY: International Paper Co., 1983.

SUGGESTED SUPPLEMENTAL MATERIAL

Audiovisuals

A. *The Offset Press* (5050) — Slide/cassette presentation.

B. *Prepress Production* (5031). 32 color, 35-mm slides, 1986.

A and B available from:

Graphic Arts Technical Foundation
4615 Forbes Avenue
Pittsburgh, PA 15213-3796
(412) 621-6941

PRINTING PROCESSES
UNIT IV

INFORMATION SHEET

I. **Terms and definitions**

A. Blanket—In offset printing, a smooth rubber surface which transfers the image from the plate to the paper

B. Blanket cylinder—That part of the offset press which holds the rubber blanket

C. Camera-ready copy—A pasteup ready to be photographed for platemaking

D. Doctor blade—In gravure printing, a knife-edged blade pressed against the etched printing cylinder to wipe away the excess ink from the non-printing areas

E. Finishing—A variety of different operations and specialties performed inline with or after printing

F. Gravure (intaglio)—A printing process in which the image is etched below the surface of the printing plate

G. Image area—That part of the plate which carries the ink to print the image

H. Impression cylinder—That part of the offset press which applies pressure for image transfer to the paper

I. Ink fountain—That part of the offset press that stores and supplies ink to the inking rollers

J. Letterpress (relief)—The process of printing from a raised surface

K. Makeready—All the work involved in preparing printing materials and the press for a particular job

L. Non-image area—That part of the plate which carries only the background

M. Offset (photo-offset, lithography, offset lithography, planigraphy)—The process of printing from a flat surface with the image and non-image areas kept separated by chemistry (grease and water don't mix)

N. Perfecting press—A printing press that prints both sides of the sheet in one pass

O. Plate—A thin sheet of paper, metal, or plastic which carries the image

P. Plate cylinder—That part of the offset press which holds the printing plate

Q. Sheet-fed press—A printing press that takes individual sheets of paper rather than rolls of paper

INFORMATION SHEET

R. Water fountain—That part of the offset press that stores and supplies water to the dampening rollers

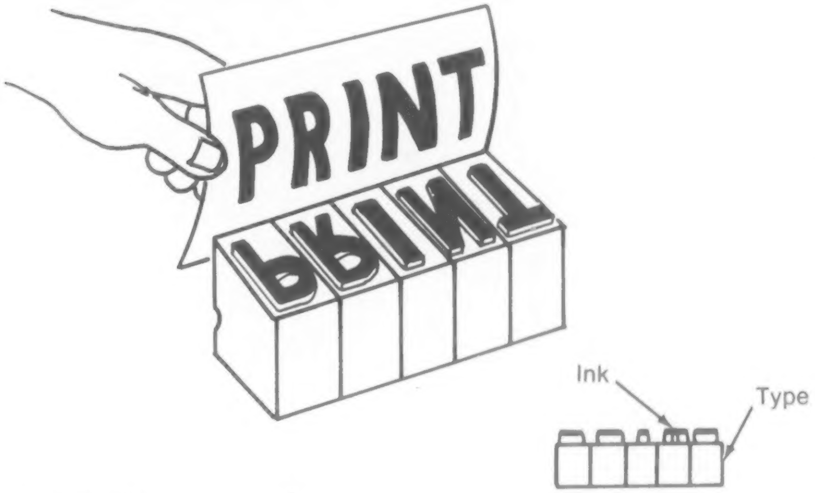
S. Web-fed (roll-fed) press—A press that prints from a roll of paper

II. **Major printing processes**

A. Letterpress (relief)

1. The oldest printing method
2. The raised image, when inked, is transferred when pressed against paper.
3. Images are reversed (wrong-reading) on the letterpress plate; when printed, the image is read correctly (right-reading).
4. Recognizable by a ring of ink around each letter (seen with a magnifying glass), and a distinct debossing effect where type and other images press into the paper.

   (NOTE: This punched impression can be seen and felt on the reverse side of the printed page.)



B. Gravure (intaglio)

1. Second oldest printing process
2. The entire surface of the plate or cylinder is inked and then wiped clean with a flexible steel scraper called a doctor blade, leaving ink only in the etched areas which the paper "sucks" to form the printed image.
3. Called rotogravure when the presses take paper on rolls rather than in sheets for extra long press runs

INFORMATION SHEET

4. Recognizable by the fact the entire image area is screened, including the type which can look fuzzy; photographs have good detail with greater contrast between light and dark areas

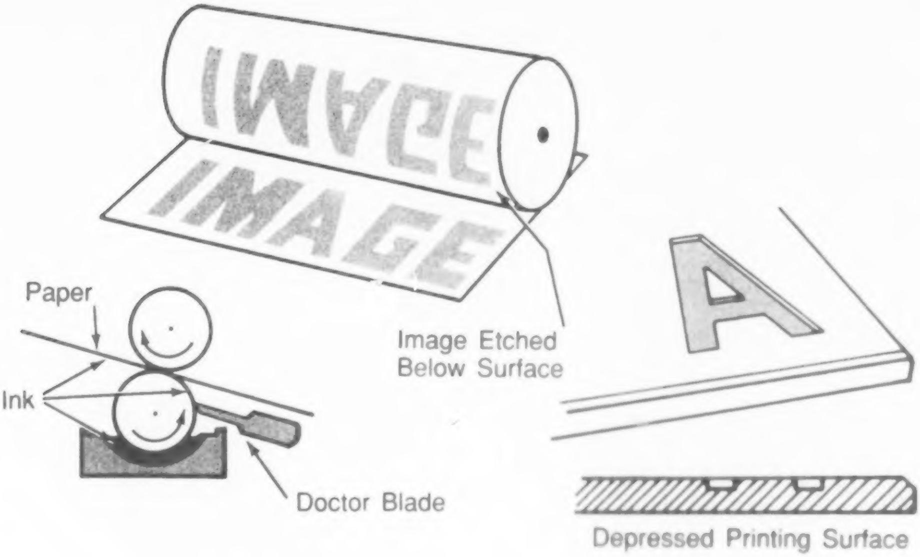


IMAGE
IMAGE
Paper
Ink
Image Etched Below Surface
Doctor Blade
Depressed Printing Surface

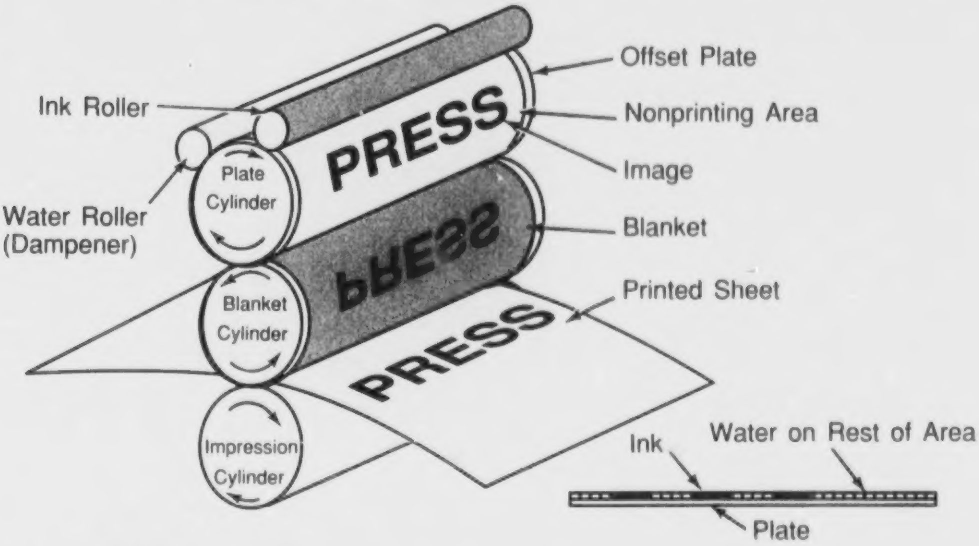
C. Offset (photo-offset, lithography, offset lithography, planography)

1. Of the three major printing processes, offset is the newest but the predominant method used today.

2. The image is first transferred from a plate to a blanket, then from the blanket to paper.

3. Both ink and water (actually, a solution of water, gum arabic and other chemicals) are applied to the plate during the printing cycle.

4. Recognizable by a smooth print, as well as by the lack of any impression or ring of ink accompanying type which are characteristics of letterpress and gravure


Offset Plate
Ink Roller
Nonprinting Area
Image
Water Roller (Dampener)
Plate Cylinder
PRESS
PRESS
Blanket
Printed Sheet
Blanket Cylinder
PRESS
Impression Cylinder
Ink
Water on Rest of Area
Plate

III. Principal pre-press steps in offset printing

A. Original page (camera-ready copy) is created

B. Page "shot" on negative film with process camera

C. Film developed

D. Negatives "opaqued" to eliminate undesired spots

E. Negatives stripped into flat (masking sheet or goldenrod)

F. Flat placed over plate and exposed to light

G. Plate developed and put on press

IV. Basic offset printing process (Transparency 1)

A. The image area of the plate surface is chemically treated to accept ink and reject water.

B. The non-image area of the plate surface is chemically or mechanically treated to accept water and reject ink.

C. During the press operation, ink and water are both continually applied to the plate surface.

D. The image is right-reading on the surface of the offset plate.

INFORMATION SHEET

E. The image is transferred (or offset) from the plate to the blanket.

F. The image on the blanket is a mirror image, or wrong-reading.

G. The blanket carries the image to the printing material.

H. The printing (or impression) takes place as the sheet of paper passes between the blanket cylinder and the impression cylinder.

I. The impression cylinder forces against the blanket to cause the image to be printed on the sheet.

J. A clear, clean image is produced by maintaining the proper ink-water balance application to the plate.

V. Advantages, disadvantages, and uses of major printing processes

A. Letterpress

1. Advantages

    a. Capable of printing jobs of a variety of sizes in black and white and in color at high speeds.

    b. Most versatile method of printing; there is equipment for short, medium, and long runs.

    c. For simple rush jobs, printing can be done directly from type.

    d. Quality is consistent throughout run.

    e. Dense ink gives a strong black image.

    f. No ink and water balance is required, so paper waste is often less than for offset.

    g. Almost any size of paper can be printed in single sheets.

    h. Accepts papers of any thickness, from the very thinnest to cardboard, depending on the type of press.

    i. Proofing is relatively inexpensive and available at any stage.

    j. Conversion of paper is easily done because of the capacity to press sharp cutting or scoring rules, numbering devices, and metal dies against paper.

2. Disadvantages

    a. Printed images often are less evenly inked and details somewhat less sharp than with offset.

INFORMATION SHEET

b. More expensive papers are required to achieve quality of offset using cheaper ones.

c. Pictures may cost more than with offset.

d. Makeready on presses is time consuming.

3. Uses

a. Short-run printing from type and engravings

b. Jobs requiring numbering (tickets, forms, etc.) and on-press die-cutting, perforating, embossing, etc.

c. Long-run publication work such as books, newspapers, magazines, as well as many types of specialty printing and packaging

B. Gravure

1. Advantages

a. Capable of high-quality, high speed printing of black and white and color jobs.

b. Ideal process for reproducing highly faithful copies of photographs.

c. Most economical process for long runs (minimum of 100,000; ideally at least 300,000 or more.)

d. Quality is consistent throughout run.

e. Capable of printing on a wide range of surfaces.

f. Able to lay down a dense layer of ink.

(NOTE: For ink density, silk screen is gravure's only rival.)

g. Produces the richest blacks and widest tonal range of all printing processes.

h. Plates are more expensive than either letterpress or offset, but they last longer.

2. Disadvantages

a. High cost of plates and cylinders makes short runs uneconomical.

b. Type is less sharp than if reproduced by offset or letterpress.

c. Proofing is more cumbersome and expensive.

d. Color correction and last minute corrections are difficult and expensive.

INFORMATION SHEET

3. Uses
    a. Large-circulation magazines, high-quality newspaper magazines, and mail-order catalogs
    b. Luxurious large-format art and photo books
    c. Some kinds of packaging, wallpaper

C. Offset

1. Advantages
    a. Capable of printing jobs of a variety of sizes in black and white and in color at a relatively low cost.
    b. Although the quality is highest on smooth or coated papers, offset can print effectively on rough-surface papers as well.
    c. Lends itself to photographic preparation methods; can reproduce anything than can be photographed.
    d. Able to use all kinds of composition methods, thus keeping typesetting cost to a minimum.
    e. Cost-free reproduction of line illustrations and less costly reproduction of photographs of very fine detail are possible.
    f. Printing plates are relatively inexpensive and require only a short time to make as compared with letterpress and gravure plates.
    g. Plates, flats, and paste-ups are easily stored.
    h. Small duplicators are inexpensive and relatively easy to operate.
    i. Offers the designer great creative freedom.

2. Disadvantages
    a. Requires more attention than letterpress or gravure to maintain image consistency throughout run—the balance between ink and water requires skill.
    b. Color variations occur due to problems with ink-water balance.
    c. Waste is usually higher than for other processes.
    d. Dense inking is difficult to achieve.
    e. Shop humidity and temperature control are more important since paper is exposed to a damp environment on the press.

INFORMATION SHEET

3. Uses

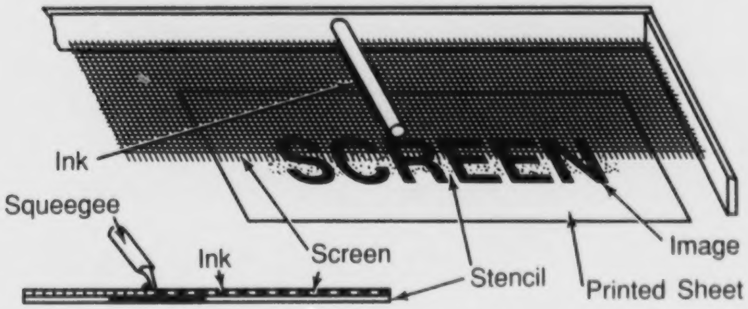
   a. Short runs (under 1,000) that involve type and illustrations such as resumes, letterheads, fliers, and newsletters

   b. Any moderate (5,000) to medium-long (100,000) runs requiring good photo reproduction such as magazines, newspapers, illustrated books and miscellaneous pieces such as office forms, brochures, and booklets

VI. Specialized printing processes

A. Screen printing — A printing method in which the image is transferred to the surface to be printed by means of ink squeezed by a squeegee through a stenciled fabric or metal wire screen stretched over a frame

(NOTE: Screen printing can place a thick layer of ink on almost any material and is excellent for short runs like posters, lawn signs, billboards, bumper stickers and menu covers.)



B. Engraving — Process that reproduces images etched or inscribed into smooth metal

(NOTE: Engraving is used for invitations, announcements and letterheads, envelopes, greeting cards, stamps, money and stock certificates.)

C. Flexography — A relief printing method using wrap-around rubber or soft plastic plates and volatile, fast-drying ink

(NOTE: Flexography is widely used in the packaging industry for milk containers, cardboard boxes, gift wraps and shopping bags.)

INFORMATION SHEET

D. Ink jet — Method of printing by spraying droplets of ink through computer-controlled nozzles

(NOTE: Ink-jet printing is used for direct mail, personalizing business forms and numbering tickets.)

E. Letterset (dry offset) — A printing method in which a low-relief plate is used on a modified offset press; as in conventional offset printing, the ink is transferred from the plate to the paper by being offset from a blanket, but unlike offset printing, no damping system is required

(NOTE: Letterset is used in the packaging industry, to print against metal, aluminum or heavy paperboards.)

F. Thermography — A process that starts with copies printed by offset or letterpress with special nondrying inks, and the freshly printed sheets are dusted with resinous powder, then heated, causing the powder to fuse and create a raised surface on the print

(NOTE: Thermography is used for invitations, business cards, and letterheads.)

G. Copying — The fastest, most convenient and economical method of duplicating small numbers of copies (less than 100).

1. Electrostatic duplication (Xerography) — A copying process produced by electrostatic forces causing a powder (toner) to adhere to the charged image area of the copy
2. Spirit duplication — A copying process utilizing a paper spirit master with a carbon image transferring the image to paper when the master is moistened by vapors of duplicating fluid
3. Mimeograph duplication — A direct-plate copying process that employs a typed or handwritten stencil mounted on a cylinder filled with ink which flows through the holes (image area) onto the paper

VII. Finishing operations

A. Die-cutting — The process of cutting special shapes into printed sheets, sometimes by dies that look and perform much like a cookie cutter

B. Embossing — Impressing an image in relief to achieve a raised surface, either over printing or on blank paper (called blind embossing)

C. Foil stamping — Applying a thin layer of colored foil to the printed material with a heated stamp or die

D. Numbering — Printing consecutive numbers on invoices, tickets, etc. with a numbering machine

(NOTE: Numbering is usually done by letterpress, although some offset presses have numbering attachments.)

INFORMATION SHEET

E. Perforating — Punching a line of minute holes in a sheet so that a part may be easily torn away

(NOTE: In letterpress, perforating is done on press; in offset or gravure, it is usually done off press.)

F. Scoring — Creasing paper so it will fold more easily

VIII. Types of material on which printing is done

A. Paper

B. Wood

C. Glass

D. Cloth

E. Metal

F. Rubber

G. Plastic

H. Leather

IX. Methods of feeding paper into the press

A. Sheet feeding

1. The "feeder" section of the press picks up the sheets, usually with a combination of metal fingers and vacuum suckers, and feeds them through to be printed.

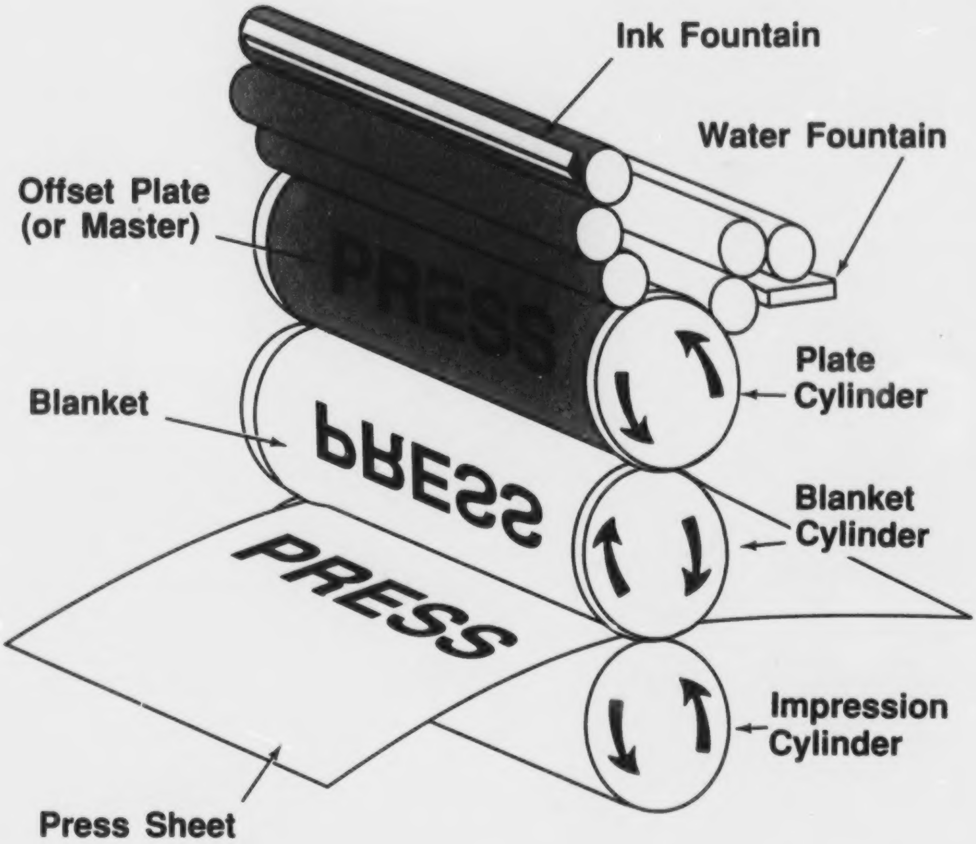
2. The sheets are delivered from the press as flat sheets.

B. Web feeding

1. Front end of press has a rollstand, which holds the roll of paper as it is unwound and fed through the press; printing can take place at much higher speeds because the machine is not slowed down by having to pick up and put down each sheet.

2. Most web presses incorporate some form of finishing process such as cutting and folding.

The Offset Process


Ink Fountain
Water Fountain
Offset Plate (or Master)
PRESS
Plate Cylinder
Blanket
PRESS
Blanket Cylinder
PRESS
Impression Cylinder
Press Sheet

Schematic drawing of an offset press. Printing progresses from plate, to blanket, to paper.

PRINTING PROCESSES
UNIT IV

ASSIGNMENT SHEET #1 — IDENTIFY PRINTING PROCESSES USED TO REPRODUCE DIFFERENT PRINTED PIECES

Name ______________________________ Score ______________

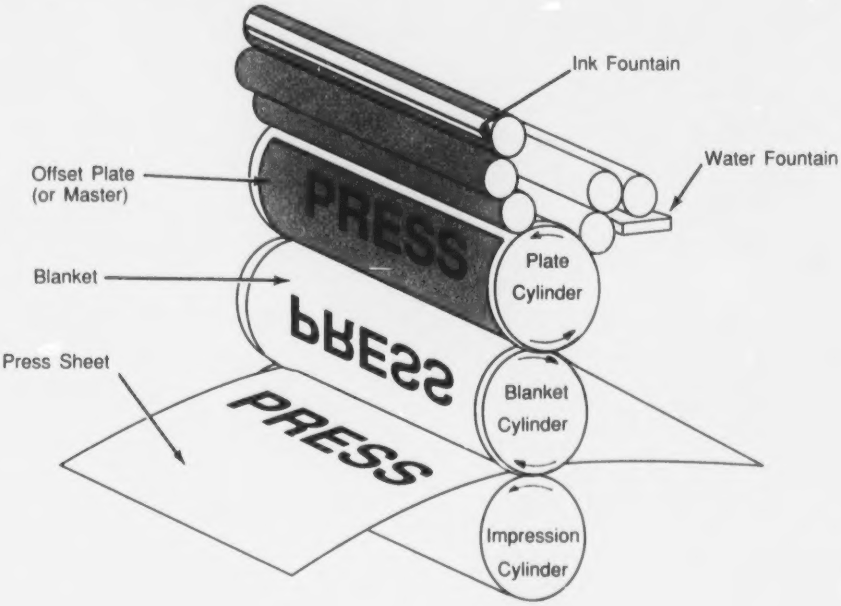
Directions: Make a scrapbook of printed pieces to illustrate the various kinds of printing processes. For instance, include samples of offset, letterpress, gravure, and as many of the specialized processes as you can find. Explain how you identified each sample.

PRINTING PROCESSES
UNIT IV

ASSIGNMENT SHEET 2 — DESCRIBE THE OFFSET PRINTING PROCESS

Name ______________________________ Score ____________

Directions: In the blanks below, describe the functions of each component in the offset process as depicted in the following illustration.


Ink Fountain
Water Fountain
Offset Plate (or Master)
PRESS
Blanket
PRESS
Plate Cylinder
Press Sheet
PRESS
Blanket Cylinder
Impression Cylinder

1. Ink fountain ______________________________
2. Water fountain ______________________________
3. Plate cylinder ______________________________
4. Blanket cylinder ______________________________
5. Impression cylinder ______________________________
6. Offset plate ______________________________
7. Blanket ______________________________
8. Press sheet ______________________________

PRINTING PROCESSES
UNIT IV

ANSWERS TO ASSIGNMENT SHEETS

Assignment Sheet #1

Student scrapbooks should include samples of the following:

1. Letterpress—Recognized by a ring of ink around each letter and debossing effect where type pressed into paper
2. Gravure—Recognized by screening over entire image area; type can look fuzzy
3. Offset—Recognized by smooth print, lacking any impression or ring of ink
4. Various specialized processes such as screen printing, engraving, etc.

Assignment Sheet #2

1. Ink fountain—Continually applies ink to the plate surface
2. Water fountain—Continually applies water to the plate surface
3. Plate cylinder—Rotates to put offset plate in contact with ink, water, and blanket
4. Blanket cylinder—Rotates to put blanket in contact with offset plate and press sheet
5. Impression cylinder—Forces press sheet against blanket to cause the image to be printed on the sheet
6. Offset plate—Carries the right-reading image
7. Blanket—Picks up the mirror or wrong-reading image from the offset plate
8. Press sheet—Receives the right-reading image from the blanket

PRINTING PROCESSES
UNIT IV

JOB SHEET #1 — TEST THE INK-WATER PRINCIPLE ON AN OFFSET PLATE

A. Tools and materials

1. Developed offset plate
2. Two cotton pads
3. Thimble-size portion of black ink
4. Clean work table
5. Water bottle
6. Clean-up solvents
7. Preservatives

B. Procedure

1. Lay plate on table with image up.
2. Wet cotton pad and wipe plate clean.
3. Apply small quantity of ink to wet cotton pad.
4. Rub plate thoroughly with the inked, wet cotton pad.
5. Write down on a sheet of paper what happened to the image area of the plate.
6. Write down what happened to the non-image area of the plate.
7. Turn sheet in to instructor.
8. Clean and gum the plate.
9. Return plate to instructor.
10. Put away tools and materials.
11. Clean up work area.

PRINTING PROCESSES
UNIT IV

PRACTICAL TEST #1 — TEST THE INK-WATER PRINCIPLE ON AN OFFSET PLATE

STUDENT'S NAME ______________________________ DATE ________________________

EVALUATOR'S NAME ____________________________ ATTEMPT NO. _______________

Instructions: When you are ready to perform this task, ask your instructor to observe the procedure and complete this form. All items listed under "Process Evaluation" must receive a "Yes" for you to receive an acceptable performance evaluation.

PROCESS EVALUATION

(EVALUATOR NOTE: Place a check mark in the "Yes" or "No" blanks to designate whether or not the student has satisfactorily achieved each step in this procedure. If the student is unable to achieve this competency, have the student review the materials and try again.)

The student:	Yes	No
1. Checked out proper tools and materials.	___	___
2. Placed plate on table with image up.	___	___
3. Wiped plate clean with wet cotton pad.	___	___
4. Applied small quantity of ink to wet cotton pad.	___	___
5. Rubbed plate thoroughly with the inked, wet cotton pad.	___	___
6. Wrote down on a sheet of paper what happened to the image area of the plate.	___	___
7. Wrote down what happened to non-image area of plate.	___	___
8. Turned sheet in to instructor.	___	___
9. Cleaned and gummed plate.	___	___
10. Returned plate to instructor.	___	___
11. Checked in/put away tools and materials.	___	___
12. Cleaned the work area.	___	___
13. Used proper tools correctly.	___	___
14. Performed steps in a timely manner. (___hrs. ___min. ___sec.)	___	___
15. Practiced safety rules throughout procedure.	___	___
16. Provided satisfactory responses to questions asked.	___	___

EVALUATOR'S COMMENTS: ____

____

____

PRACTICAL TEST #1

PRODUCT EVALUATION

(EVALUATOR NOTE: Rate the student on the following criteria. If the student is unable to demonstrate mastery, student materials should be reviewed and another product must be submitted for evaluation. See suggested performance evaluation keys below.)

Option A

4 — Skilled — Can perform job with no additional training.
3 — Moderately skilled — Has performed job during training program; limited additional training may be required.
2 — Limited skill — Has performed job during training program; additional training is required to develop skill.
1 — Unskilled — Is familiar with process, but is unable to perform job.

Option B

Yes — Can perform job with no additional training.

No — Is unable to perform job satisfactorily.

Criteria:	Rating:
Ink and water properly applied to plate.	
Ink adhering to image area and not adhering to non-image area properly noted.	

EVALUATOR'S COMMENTS: ______________________________

____

PRINTING PROCESSES
UNIT IV

TEST

Name ______________________________ Score ______________

1. Match the terms on the right with the correct definitions. Terms and definitions are continued on the next page.

_____a. The process of printing from a flat surface with the image and non-image areas kept separated by chemistry

_____b. A printing process in which the image is etched below the surface of the printing plate

_____c. The process of printing from a raised surface

_____d. All the work involved in preparing printing materials and the press for a particular job

_____e. In gravure printing, a knife-edged blade pressed against the etched printing cylinder to wipe away the excess ink from the non-printing areas

_____f. In offset printing, a smooth rubber surface which transfers the image from the plate to the paper

_____g. That part of the plate which carries the ink to print the image

_____h. That part of the plate which carries only the background

_____i. That part of the offset press which holds the rubber blanket

_____j. That part of the offset press which holds the printing plate

_____k. That part of the offset press which applies pressure for image transfer to the paper

_____l. That part of the offset press that stores and supplies water to the dampening rollers

1. Blanket
2. Blanket cylinder
3. Camera-ready copy
4. Doctor blade
5. Finishing
6. Gravure
7. Image area
8. Impression cylinder
9. Ink fountain
10. Letterpress
11. Makeready
12. Non-image area

TEST

_____m. That part of the offset press that stores and supplies ink to the inking rollers

_____n. A thin sheet of paper, metal, or plastic which carries the image

_____o. A press that prints from a roll of paper

_____p. A printing press that takes individual sheets of paper rather than rolls of paper

_____q. A printing press that prints both sides of the sheet in one pass

_____r. A pasteup ready to be photographed for platemaking

_____s. A variety of different operations and specialties performed in-line with or after printing

13. Offset
14. Perfecting press
15. Plate
16. Plate cylinder
17. Sheet-fed press
18. Water fountain
19. Web-fed press

2. Select true statements concerning major printing processes by placing an "X" next the true statements.

_____a. Offset is the newest but the predominant method used today.

_____b. Gravure is the oldest printing method.

_____c. In letterpress printing, the raised image, when inked, is transferred when pressed against paper.

_____d. In letterpress printing, the entire surface of the plate or cylinder is inked and then wiped clean with a flexible steel scraper called a "doctor blade," leaving ink only in the etched areas which the paper "pulls" to form the printed image.

_____e. In offset printing, both ink and water are applied to the plate during the printing cycle.

_____f. Offset is recognizable by a smooth print.

3. Arrange in order the principal pre-press steps in offset printing.

_____a. Plate developed and put on press

_____b. Negatives stripped into flat

_____c. Negatives "opaqued" to eliminate undesired spots

_____d. Page "shot" on negative film with process camera

_____e. Film developed

TEST

_____f. Original page is created

_____g. Flat placed over plate and exposed to light

4. Select true statements concerning the basic offset printing process by placing an "X" next to the true statements.

_____a. The image area of the plate surface is chemically treated to accept ink and reject water.

_____b. During the press operation ink and water are alternately applied to plate surface.

_____c. The image is wrong-reading on the surface of the offset plate.

_____d. The image is transferred from the plate to the blanket.

_____e. The image on the blanket is right-reading.

_____f. The blanket carries the image to the printing material.

_____g. The printing takes place as the sheet of paper passes between the blanket cylinder and the impression cylinder.

_____h. The impression cylinder forces against the blanket to cause the image to be printed on the sheet.

_____i. A clear, clean image is produced by maintaining the proper ink-water balance application to the plate.

5. Distinguish among the advantages, disadvantages, and uses of the major printing processes. For each of the following statements, write an "L" for letterpress, a "G" for gravure, or an "O" for offset.

_____a. High cost of plates and cylinders makes short runs uneconomical.

_____b. Used for jobs requiring numbering and on-press die-cutting, perforating, and embossing.

_____c. Proofing is relatively inexpensive and available at any stage.

_____d. Printing plates are relatively inexpensive and require only a short time to make.

_____e. Used for luxurious large-format art and photo books.

_____f. Makeready on presses is time-consuming.

_____g. Lends itself to photographic methods; can reproduce anything that can be photographed.

_____h. Color variations occur due to problems with ink-water balance.

_____i. Most economic process for long runs.

_____j. Produces the richest blacks and widest tonal range of all printing processes.

_____k. Capable of printing jobs of a variety of sizes in black and white and in color at a relatively low cost.

_____l. Most versatile method of printing; there is equipment for short, medium, and long runs.

6. Match the specialized printing processes on the right with the correct descriptions.

_____a. A printing method in which the image is transferred to the surface to be printed by means of ink squeezed by a squeegee through a stenciled fabric or metal wire screen stretched over a frame

_____b. Method of printing by spraying droplets of ink through computer-controlled nozzles

_____c. A process that starts with copies printed by offset or letterpress with special nondrying inks, and the freshly printed sheets are dusted with resinous powder, then heated, causing the powder to fuse and create a raised surface on the print

_____d. A relief printing method using wrap-around rubber or soft plastic plates and volatile, fast-drying ink

_____e. A printing method in which a low-relief plate is used on a modified offset press. As in conventional offset printing, the ink is transferred from the plate to the paper by being offset from a blanket, but unlike offset printing, no damping system is required

_____f. A copying process produced when static electricity causes a powder to adhere to the charged image area of the copy

1. Spirit duplication
2. Engraving
3. Flexography
4. Ink jet
5. Letterset
6. Screen printing

TEST

_____g. A direct-plate copying process that employs a typed or handwritten stencil mounted on a cylinder filled with ink which flows through the holes onto the paper

_____h. A copying process utilizing a paper spirit master with a carbon image transferring the image to paper when the master is moistened by vapors of duplicating fluid

_____i. Process that reproduces images etched or inscribed into smooth metal

7. Thermography
8. Mimeograph duplication
9. Electrostatic duplication

7. Match the finishing operations on the right with the correct descriptions.

_____a. Applying a thin layer of colored foil to the printed material with a heated stamp or die

_____b. Punching a line of minute holes in a sheet so that a part may be easily torn away

_____c. The process of cutting special shapes into printed sheets, sometimes by dies that look and perform much like a cookie cutter

_____d. Creasing paper so it will fold more easily

_____e. Impressing an image in relief to achieve a raised surface, either over printing or on blank paper

_____f. Printing consecutive numbers on invoices, tickets, etc., with a numbering machine

1. Die-cutting
2. Embossing
3. Foil stamping
4. Numbering
5. Perforating
6. Scoring

8. Name six types of material on which printing is done.

a. ____________________

b. ____________________

c. ____________________

d. ____________________

TEST

e. ____________________

f. ____________________

9. Name the two methods of feeding paper into the press.

   a. ____________________

   b. ____________________

(NOTE: If the following activities have not been accomplished prior to the test, ask your instructor when they should be completed.)

10. Identify printing processes used to reproduce various printed pieces. (Assignment Sheet #1)

11. Describe the offset printing process. (Assignment Sheet #2)

12. Demonstrate the ability to test the ink-water principle on an offset plate. (Job Sheet #1)

PRINTING PROCESSES
UNIT IV

ANSWERS TO TEST

1.

a.	13	f.	1	k.	8	p.	17
b.	6	g.	7	l.	18	q.	14
c.	10	h.	12	m.	9	r.	3
d.	11	i.	2	n.	15	s.	5
e.	4	j.	16	o.	19		

2. a, c, e, f

3.

a.	7	e.	3
b.	5	f.	1
c.	4	g.	6
d.	2		

4. a, d, f, g, h, i

5.

a.	G	e.	G	i.	G
b.	L	f.	L	j.	G
c.	L	g.	O	k.	O
d.	O	h.	O	l.	L

6.

a.	6	f.	9
b.	4	g.	8
c.	7	h.	1
d.	3	i.	2
e.	5		

7.

a.	3	d.	6
b.	5	e.	2
c.	1	f.	4

8. Any six of the following:

   a. Paper
   b. Wood
   c. Glass
   d. Cloth
   e. Metal
   f. Rubber
   g. Plastic
   h. Leather

ANSWERS TO TEST

9. a. Sheet feeding
   b. Web feeding

10. & 11. Evaluated to the satisfaction of the instructor

12. Performance skills evaluated to the satisfaction of the instructor

PAPER
UNIT V

UNIT OBJECTIVE

After completion of this unit, the student should be able to select appropriate kinds of paper for various printed jobs. Competencies will be demonstrated by completing the assignment sheets and the unit test with a minimum score of 85 percent.

SPECIFIC OBJECTIVES

After completion of this unit, the student should be able to:

1. Match terms related to paper with the correct definitions.
2. Match the basic paper grades with their uses.
3. Match the basic paper sizes with their dimensions.
4. Name factors affecting paper choice.
5. Describe tests and procedures for determining grain direction.
6. Select true statements concerning printing process requirements.
7. List information to specify when ordering paper.
8. Match commercial envelope number sizes with their dimensions.
9. List rules for handling paper.
10. Identify basic grades of paper. (Assignment Sheet #1)
11. Choose the correct paper for various jobs. (Assignment Sheet #2)

PAPER
UNIT V

SUGGESTED ACTIVITIES

A. Obtain additional materials and/or invite resource people to class to supplement/reinforce information provided in this unit of instruction.

(NOTE: This activity should be completed prior to the teaching of this unit.)

B. Make transparencies from the transparency masters included with this unit.

C. Provide students with objective sheet.

D. Discuss unit and specific objectives.

E. Provide students with information and assignment sheets.

F. Discuss information and assignment sheets.

(NOTE: Use the transparencies to enhance the information as needed.)

G. Integrate the following activities throughout the teaching of this unit:

1. Show the video *Paper is Part of the Picture* or the pre-recorded slide presentation *Milestones in Papermaking.*
2. Bring to class samples of the basic grades of paper and discuss characteristics of each grade.
3. Ask a paper salesperson to talk about selecting, ordering, and determining the cost of paper.
4. Have students obtain examples of letterheads from different businesses and then look to see which ones have watermarks.
5. Meet individually with students to evaluate their progress through this unit of instruction, and indicate to them possible areas for improvement.

H. Give test.

I. Evaluate test.

J. Reteach if necessary.

REFERENCES USED IN WRITING THIS UNIT

A. Beach, Mark, Steve Shepro, and Ken Russon. *Getting It Printed.* Portland, OR: Coast to Coast Books, 1986.

REFERENCES USED IN WRITING THIS UNIT

B. Crow, Wendall C. *Communication Graphics.* Englewood Cliffs, NJ: Prentice-Hall, 1986.

C. Dennis, Ervin A. *Lithographic Techniques.* Indianapolis, IN: Bobbs-Merrill Company, Inc., 1980.

D. *Pocket Pal: A Graphic Arts Production Handbook.* New York, NY: International Paper Co., 1983.

SUGGESTED SUPPLEMENTAL MATERIAL

A. Videotape—*Paper is Part of the Picture*

Available from:

Strathmore Paper Company
Department SS
Box 191
Westfield, MA 01085
413/568-9111

B. Slide presentation—*Milestones in Papermaking* (5021)

Available from:

Education Council of the Graphic Arts Industry
Graphic Arts Technical Foundation
4615 Forbes Avenue
Pittsburgh, PA 15213-3796
412/621-6941

PAPER
UNIT V

INFORMATION SHEET

I. **Terms and definitions**

A. Basic size—The size adopted over time as standard for each type or grade of paper

B. Basis weight—The weight in pounds of 500 sheets of paper cut to a given standard size for that grade (Transparency 1)

(NOTE: Basis weight may also be known as "substance.")

EXAMPLE: For book grades, paper stock is "70 pound" if 500 sheets 25 by 38 inches weigh 70 pounds.

C. Brightness—Characteristic of paper referring to how much light it reflects

D. Bulk—Thickness of paper, expressed in sheets per inch

E. Calendaring—A rolling operation during papermaking that creates the amount of smoothness in paper

F. Caliper—Thickness of a sheet of paper, usually measured in thousandths of an inch (Transparency 2)

G. Color—Pigment or shade of paper

(NOTE: Paper is available in virtually every color and also in a wide range of whites.)

H. Felt side—The smoother side of the paper that was on the felt blanket of the papermaking machine

I. Fiber—Wood pulp reduced to wood or cellulose fibers, the basic ingredient of paper

J. Finish—Surface characteristic of paper that affects look, feel, and printability

K. Grain—The direction the fiber runs in paper

(NOTE: Knowing the grain of paper is important for printing, folding, and binding.)

L. Opacity (show-through)—The property of paper that helps prevent printing on one side from showing on the other

(NOTE: The more opaque the paper, the less show-through will occur.)

M. Printability—The ability of a paper to take print adequately without problems

INFORMATION SHEET

N. Ream—500 sheets of paper

(NOTE: Most business papers are packaged in reams.)

O. Runability—Properties that affect the ability of the paper to run on the press

P. Watermark—Distinctive design created in paper during manufacture

Q. Wire side—The side of paper next to the screen on the papermaking machine

R. Recycled—Paper produced from collected waste paper

(NOTE: Recycled paper comes in all grades and colors, and may have greater flexibility and greater opacity than non-recycled papers.)

II. Uses of basic paper grades

A. Writing—Used for letterheads, business forms, certificates, checks, fliers, resumes, photocopies

1. Bond
2. Ledger
3. Safety
4. Business

B. Book—Used for books, booklets, brochures, magazines, newsletters, fliers, posters, programs, announcements

1. Uncoated
2. Text
3. Coated

   (NOTE: Coated papers may come in matte, gloss, dull, and cast coated.)

4. Offset

C. Cover—Used for covers on booklets, business cards, menus, folders, table tents, tickets, invitations, business reply cards

D. Card stock—Used for file folders, covers, post cards, tags, signs, point of purchase displays

1. Bristol

INFORMATION SHEET

2. Index
3. Tag
4. Blanks

E. Newsprint—Used for newspapers, fliers, circulars

F. Specialty papers—Used for directories, direct mail pieces, fly leaves, forms, bags, labels, stickers, banners, maps

1. Lightweight

   EXAMPLES: Manifold, onionskin, Bible

2. Translucents
3. Carbonless
4. Kraft
5. Gummed
6. Pressure-sensitive
7. Label
8. Synthetic

III. Dimensions of basic paper sizes

A. Bond—17" by 22"

B. Book—25" by 38"

C. Cover—20" by 26"

D. Bristol—22½" by 28½"

E. Index—22½" by 35" and 25½" by 30½"

F. Tag—24" by 36"

G. Newsprint—24" by 36"

IV. Factors affecting paper choice

A. Grain

B. Weight

INFORMATION SHEET

C. Size

D. Bulk

E. Opacity

F. Color

G. Finish

H. Price

(NOTE: Paper represents a major production cost.)

I. Availability

J. Reproduction quality

K. Durability

L. Chemical and physical properties that affect presswork, folding, and binding

M. Production equipment to be used

N. Suitability for scoring, embossing, die-cutting

O. Psychological factors

EXAMPLE: Environmental groups prefer recycled paper.

P. Postal Service guidelines

Q. Mailing costs

V. **Tests and procedures for determining grain direction** (Transparency 3)

A. Bending—Hold a sheet first at one edge, then the other; the side producing the greatest sag is the direction of the grain.

B. Tearing—Tear a sheet from the end and from the side; the cleanest tear is with the grain direction.

C. Folding—Fold and crease paper sharply in both directions; the smoothest crease is with the grain.

D. Wetting—Wet sheet; paper rolls with the direction of grain.

VI. **Printing process requirements**

A. Letterpress papers should be smooth (so that uneven impression is prevented) and free from lint and dust.

INFORMATION SHEET

B. Gravure papers should be extremely smooth and have a certain amount of absorbency.

C. Offset papers require moisture resistance and should have good surface strength (to avoid "picking") and be lint-free.

D. Screen printing papers require resistance to change in dimensions under heat drying conditions.

VII. Information to specify when ordering paper

A. Quantity

(NOTE: Paper can be bought in sheet or roll form.)

B. Size

C. Grain direction

(NOTE: Underline dimension to indicate grain.)

D. Weight

E. Color

F. Brand name

G. Texture or finish

H. Grade

(NOTE: Additional information might include C1S and C2S for "coated one side" and "coated two sides"; Duplex or Duo for paper with different color or finish on each side; gummed; pressure-sensitive; carbonless, etc.)

EXAMPLES:
5,000 sheets, 23 × 35, 80# sand Wausau Astro Parche text
2,000 sheets (4 reams), 8½ × 11, 24# Beckett Cambric Gray writing
600 sheets, 25 × 38, 8 pt., WarrenFlo cover
1,500 sheets, 20 × 26, 60# white High Gloss Fasson Crack'n Peel label
1,920 lbs. (6 rolls), 11 inch, 60#, white wove Hammermill offset opaque

VIII. Commercial envelope number sizes and dimensions (Transparency 4)

A. 6¼ size—Dimensions 3½" × 6"

B. 6¾ size—Dimensions 3⅝" × 6½"

C. 7 size—Dimensions 3¾" × 6¾"

D. 7¾ size—Dimensions 3⅞" × 7½"

E. Monarch size—Dimensions 3⅞" × 7½"

F. Check size—Dimensions 3⅝" × 8⅝"

G. 9 size—Dimensions 3⅞" × 8⅞"

H. 10 size—Dimensions 4⅛" × 9½"

I. 11 size—Dimensions 4½" × 10⅜"

J. 12 size—Dimensions 4¾" × 11"

K. 14 size—Dimensions 5" × 11½"

(NOTE: The two most common envelope sizes are #6¾ business envelopes and #10 business envelopes.)

IX. Rules for handling paper

A. Keep paper flat.

B. Never drop paper cartons.

C. **Do not** store paper in direct sunlight.

D. Stack paper on pallets instead of on concrete floors.

E. Reseal opened reams and cartons.

F. Allow incoming paper to adjust to temperature and humidity conditions in the plant.

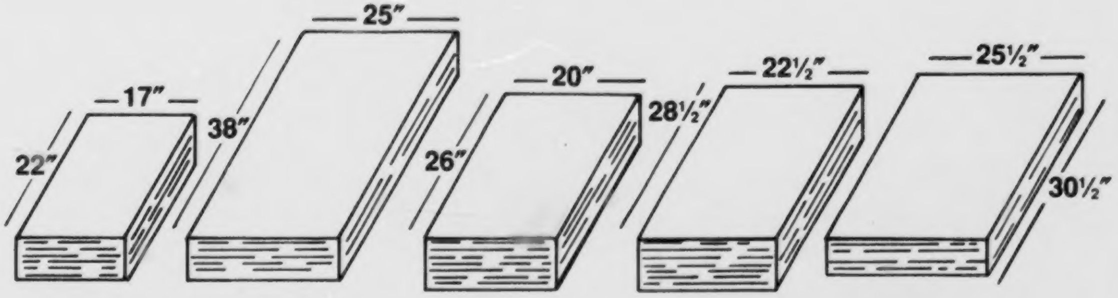
G. Keep all stock marked; **do not** destroy labels.

H. Use oldest stock first.

I. Use proper equipment to lift papers.

Basis Weight of Standard Paper Sizes

Basis Weight = Weight of 500 Sheets of Basis Size Paper



Types of Paper:	Bond	Book-Offset-Text	Cover	Bristol	Index
Basis Size:	17×22	25×38	20×26	22½×28½	25½×30½

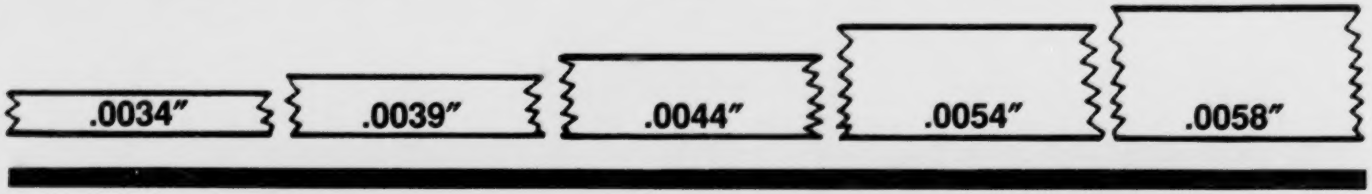
(Used with permission of Western Paper Company, Oklahoma City, Oklahoma.)

Caliper of Paper

Enlarged Edge View of Thickness (Caliper)

70 Pound Book Paper

Coated		Uncoated		
Conventional Coated Paper	Warrenflo	Smooth Finish	Vellum Finish	Antique Finish
.0034"	.0039"	.0044"	.0054"	.0058"

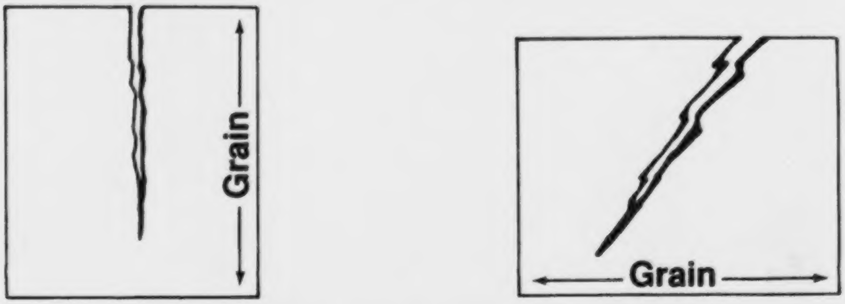


Small differences in thickness provide significant variation.

Example: Uncoated antique book paper will be 70 percent thicker than conventionally coated offset.

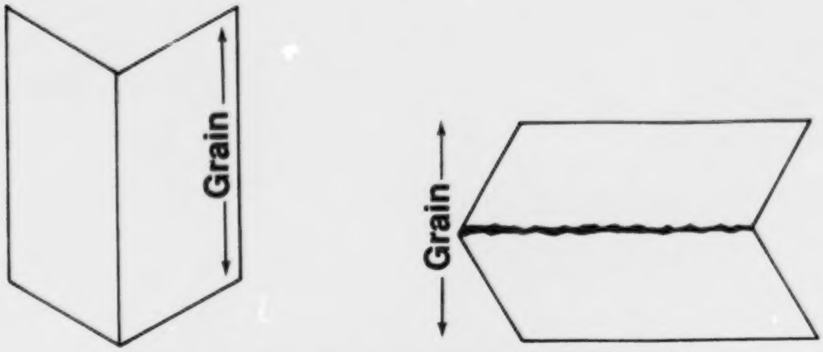
(Used with permission of Western Paper Company, Oklahoma City, Oklahoma.)

Grain Tests


Grain
Grain

Paper tears straighter with grain.

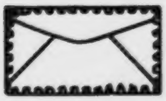
Tear

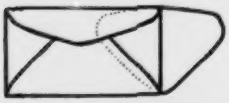

Grain
Grain

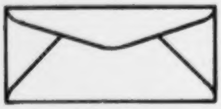
Paper folds more easily with grain.

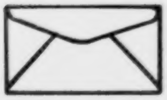
Fold

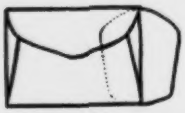
Types of Envelopes

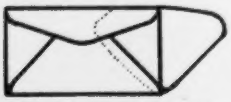

Air Mail

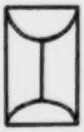

Postage Saver

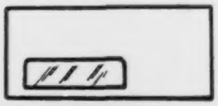

Official

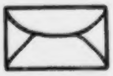

Commercial

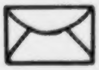

Booklet

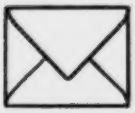

Dot-A-Gum Postage Saver

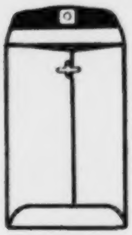

Coin

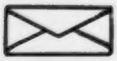

Transparent Window

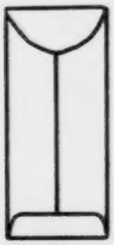

Pay

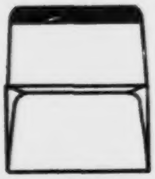

Drug

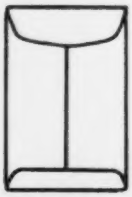

Baronial


Clasp


Theater


Policy


Remittance


Catalog

(Courtesy Carpenter Paper Company, Oklahoma City)

PAPER
UNIT V

ASSIGNMENT SHEET #1 — IDENTIFY BASIC GRADES OF PAPER

Name ______________________________ Score ______________

Directions: Obtain (from your instructor, a printer, or paper wholesaler) examples of each grade of paper. (Refer to Section II of the Information Sheet.)

1. Make a scrapbook with samples of each grade. Label the samples. Learn to recognize each grade by sight and touch.

2. Examine some of your samples. Using a magnifying glass, determine the felt side and the wire side of the sheets.

3. Fold a few of your sheets of paper with and against the grain. Note the differences, if any.

PAPER
UNIT V

ASSIGNMENT SHEET #2 — CHOOSE THE CORRECT PAPER FOR VARIOUS JOBS

Name ______________________________ Score ______________

Directions: Examine an assortment of paper. Select a paper stock that would be most suitable for the following:

1. Letterhead for your school
2. A business card for a lawyer
3. An invitation to a reception in honor of a mayoral candidate
4. A direct mail piece for a new pizza restaurant
5. A circular for a grocery store
6. A sales brochure for a new apartment complex
7. A newsletter for a hospital

PAPER
UNIT V

ANSWERS TO ASSIGNMENT SHEETS

Assignment Sheet #1

1. Student scrapbook should include examples of the following grades of paper:
    a. Writing
    b. Book
    c. Cover
    d. Card stock
    e. Newsprint
    f. Specialty papers
2. Students should note that the felt side is smoother than the wire side of the papers.
3. Students should note that paper folds more easily with than against the grain.

Assignment Sheet #2

The students' selections should be from the following grades of paper:

1. Writing
2. Cover
3. Cover
4. Specialty paper
5. Newsprint
6. Book
7. Book

PAPER
UNIT V

TEST

Name ______________________________ Score ______________

1. Match the terms on the right with the correct definitions.

_____a. Distinctive design created in paper during manufacture

_____b. Characteristic of paper referring to how much light it reflects

_____c. The direction the fiber runs in paper

_____d. Properties that affect the ability of the paper to run on the press

_____e. Thickness of a sheet of paper, usually measured in thousandths of an inch

_____f. The ability of a paper to take print adequately without problems

_____g. Wood pulp reduced to wood or cellulose fibers, the basic ingredient of paper

_____h. The property of paper that helps prevent printing on one side from showing on the other

_____i. 500 sheets of paper

_____j. Surface characteristic of paper that affects look, feel, and printability

_____k. Thickness of paper, expressed in sheets per inch

_____l. The smoother side of the paper that was on the felt blanket of the papermaking machine

_____m. Paper produced from collected waste paper

_____n. The side of paper next to the screen on the papermaking machine

1. Basic size
2. Basis weight
3. Brightness
4. Bulk
5. Calendaring
6. Caliper
7. Color
8. Felt side
9. Fiber
10. Finish
11. Grain
12. Opacity
13. Printability
14. Ream

TEST

_____o. The size adopted over time as standard for each type or grade of paper

_____p. The weight in pounds of 500 sheets of paper cut to a given standard size for that grade

_____q. A rolling operation during papermaking that creates the amount of smoothness in paper

_____r. Pigment or shade of paper

15. Runability
16. Watermark
17. Wire side
18. Recycled

2. Match the basic paper grades with their uses.

_____a. Used for newspapers, fliers, circulars

_____b. Used for letterheads, business forms, certificates, checks, fliers, resumes, photocopies

_____c. Used for books, booklets, brochures, magazines, newsletters, fliers, posters, programs, announcements

_____d. Used for covers on booklets, business cards, menus, folders, table tents, tickets, invitations, business reply cards

_____e. Used for file folders, covers, post cards, tags, signs, point of purchase displays

_____f. Used for directories, direct mail pieces, fly leaves, forms, bags, labels, stickers, banners, maps

1. Book
2. Card stock
3. Cover
4. Newsprint
5. Specialty
6. Writing

TEST

3. Match the basic paper sizes with their dimensions.

_____a.	25" by 38"	1. Cover
_____b.	22½" by 35" and 25½" by 30½"	2. Bond
_____c.	24" by 36"	3. Newsprint
_____d.	20" by 26"	4. Bristol
_____e.	24" by 36"	5. Tag
_____f.	17" by 22"	6. Book
_____g.	22½" by 28½"	7. Index

4. Name eight factors affecting paper choice.

a. ______________________________

b. ______________________________

c. ______________________________

d. ______________________________

e. ______________________________

f. ______________________________

g. ______________________________

h. ______________________________

5. Describe the four tests and procedures for determining grain direction.

a. ______________________________
____

b. ______________________________
____

c. ______________________________
____

d. ______________________________
____

TEST

6. Select true statements concerning printing process requirements by placing an "X" next to the true statements.

_____a. Letterpress papers should be smooth and free from lint and dust.

_____b. Gravure papers should be rough and have a certain amount of absorbency.

_____c. Offset papers require moisture resistance and should have good surface strength and be lint-free.

_____d. Screen printing papers require resistance to change in dimensions under heat drying conditions.

7. List five pieces of information to specify when ordering paper.

a. ______________________________

b. ______________________________

c. ______________________________

d. ______________________________

e. ______________________________

8. Match commercial envelope number sizes with their dimensions.

_____a.	6¼	1. 3¾" × 6¾"
_____b.	6¾	2. 4⅛" × 9½"
_____c.	7	3. 3⅝" × 6½"
_____d.	7¾	4. 5" × 11½"
_____e.	Monarch	5. 4½" × 10⅜"
_____f.	Check	6. 3½" × 6"
_____g.	9	7. 3⅞" × 7½"
_____h.	10	8. 3⅝" × 8⅝"
_____i.	11	9. 3⅞" × 7½"
_____j.	12	10. 4¾" × 11"
_____k.	14	11. 3⅞" × 8⅞"

TEST

9. List five rules for handling paper.

    a. ______________________________

    b. ______________________________

    c. ______________________________

    d. ______________________________

    e. ______________________________

(NOTE: If the following activities have not been accomplished prior to the test, ask your instructor when they should be completed.)

10. Identify basic grades of paper. (Assignment Sheet #1)

11. Choose the correct paper for various jobs. (Assignment Sheet #2)

PAPER
UNIT V

ANSWERS TO TEST

1.
   - a. 16
   - b. 3
   - c. 11
   - d. 15
   - e. 6
   - f. 13
   - g. 9
   - h. 12
   - i. 14
   - j. 10
   - k. 4
   - l. 8
   - m. 18
   - n. 17
   - o. 1
   - p. 2
   - q. 5
   - r. 7

2.
   - a. 4
   - b. 6
   - c. 1
   - d. 3
   - e. 2
   - f. 5

3.
   - a. 6
   - b. 7
   - c. 5 or 3
   - d. 1
   - e. 3 or 5
   - f. 2
   - g. 4

4. Any eight of the following:

   - a. Grain
   - b. Weight
   - c. Size
   - d. Bulk
   - e. Opacity
   - f. Color
   - g. Finish
   - h. Price
   - i. Availability
   - j. Reproduction quality
   - k. Durability
   - l. Chemical and physical properties that affect presswork, folding, and binding
   - m. Production equipment to be used
   - n. Suitability for scoring, embossing, die-cutting
   - o. Psychological factors
   - p. Postal Service guidelines
   - q. Mailing costs

5.
   - a. Bending—Hold a sheet first at one edge, then the other; the side producing the greatest sag is the direction of the grain.
   - b. Tearing—Tear a sheet from the end and from the side; the cleanest tear is with the grain direction.

ANSWERS TO TEST

c. Folding—Fold and crease paper sharply in both directions; the smoothest crease is with the grain.
d. Wetting—Wet sheet; paper rolls with the direction of grain.

6. a, c, d

7. Any five of the following:

a. Quantity
b. Size
c. Grain direction
d. Weight
e. Color
f. Brand name
g. Texture or finish
h. Grade

8.	a.	6	e.	7 or 9	i.	5
	b.	3	f.	8	j.	10
	c.	1	g.	11	k.	4
	d.	7 or 9	h.	2		

9. Any five of the following:

a. Keep paper flat.
b. Never drop paper cartons.
c. **Do not** store paper in direct sunlight.
d. Stack paper on pallets instead of on concrete floors.
e. Reseal opened reams and cartons.
f. Allow incoming paper to adjust to temperature and humidity conditions in the plant.
g. Keep all stock marked; **do not** destroy labels.
h. Use oldest stock first.
i. Use proper equipment to lift papers.

10. & 11. Evaluated to the satisfaction of the instructor

TYPOGRAPHY
UNIT VI

UNIT OBJECTIVE

After completion of this unit, the student should be able to measure type and identify parts of a type character, races of type and formats of type composition. Competencies will be demonstrated by completing the assignment sheets and the unit test with a minimum score of 85 percent.

SPECIFIC OBJECTIVES

After completion of this unit, the student should be able to:

1. Match terms related to typography with the correct definitions.
2. Identify parts of a type character.
3. Identify races of type.
4. Complete statements concerning type families.
5. Complete statements concerning the measurement of type.
6. Identify formats of type composition.
7. Identify type races in printed material. (Assignment Sheet #1)
8. Measure type. (Assignment Sheet #2)
9. Identify formats of type composition. (Assignment Sheet #3)

TYPOGRAPHY
UNIT VI

SUGGESTED ACTIVITIES

A. Obtain additional materials and/or invite resource people to class to supplement/reinforce information provided in this unit of instruction.

(NOTE: This activity should be completed prior to the teaching of this unit.)

B. Make transparencies from the transparency masters included with this unit.

C. Provide students with objective sheet.

D. Discuss unit and specific objectives.

E. Provide students with information and assignment sheets.

F. Discuss information and assignment sheets.

(NOTE: Use the transparencies to enhance the information as needed.)

G. Integrate the following activities throughout the teaching of this unit:

1. Show samples of different races of type.
2. Show samples of different families of type and family variations.
3. Show samples of different formats of type composition.
4. Meet individually with students to evaluate their progress through this unit of instruction, and indicate to them possible areas for improvement.

H. Give test.

I. Evaluate test.

J. Reteach if necessary.

REFERENCES USED IN WRITING THIS UNIT

A. Baird, Russell N., Arthur T. Turnbull and Duncan McDonald. *The Graphics of Communication*, 5th ed. New York, NY: Holt, Rinehart and Winston, 1987.

B. Beach, Mark, Steve Shepro and Ken Russon. *Getting It Printed.* Portland, OR: Coast to Coast Books, 1986.

C. Conover, Theodore E. *Graphic Communications Today.* St. Paul, MN: West Publishing Co., 1985.

D. Craig, James. *Designing with Type: A Basic Course in Typography.* New York, NY: Watson-Guptill Publications, 1980.

REFERENCES USED IN WRITING THIS UNIT

E. Crow, Wendall C. *Communication Graphics.* Englewood Cliffs, NJ: Prentice-Hall, 1986.

SUGGESTED SUPPLEMENTAL MATERIAL

A. Periodical—*U&l.c. (Upper and Lower Case): The International Journal of Typographics.* Published by International Typeface Corp., quarterly.

B. Slide presentation—*Typefaces* (5080)

Available from:

Graphic Arts Technical Foundation
4615 Forbes Avenue
Pittsburgh, PA 15213-3796
(412) 621-6941

TYPOGRAPHY
UNIT VI

INFORMATION SHEET

I. **Terms and definitions**

A. Ascender — The part of a lowercase letter that rises above the x-height, as in b, d, f, h, k, l, and t

B. Body type — Type 12 points and smaller

(NOTE: This is also referred to as *text type*.)

C. Characters — Individual letters, numerals, punctuation marks or other symbols

D. Descender — The part of a lowercase letter that goes below the x-height, as in g, j, p, q, and y

E. Dingbat — A typographic decorative device such as a bullet or star

F. Display type — Type 14 points or larger

G. Family — All the type styles of a particular typeface

EXAMPLES: Normal, *italic*, and **bold**

H. Font — All the characters of a particular typeface

I. Kerning — Adjusting the letterspacing between certain letters to make them appear better fitted together

(NOTE: Kerning is often called *set with minus letterspacing*.)

J. Leading — The space between lines of type

(NOTE: Leading is pronounced "ledding.")

K. Letterspacing — Amount of space between letters

L. Line gauge — Printer's ruler that is calibrated in picas, points, and inches

M. Lowercase — Small letters of the alphabet

N. Measure — The width of a line of type

(NOTE: Measure is also referred to as *line length* or *column width*.)

O. Pica — Unit of measurement equaling approximately $\frac{1}{6}$ of an inch or 12 points

P. Point — Unit of measurement equaling approximately $\frac{1}{72}$ of an inch or $\frac{1}{12}$ of a pica; used to express type size or leading

INFORMATION SHEET

Q. River — Distracting pattern of white space running vertically down through body copy

R. Serifs — Short cross-strokes that project out at the end of the main letter strokes in some typefaces

S. Small caps — Capital letters that are the same size as the x-height of the typeface

EXAMPLE: Small Caps

T. Straight matter — Body type set in normal paragraph form in contrast to tabular matter

U. Tabular matter — Charts, tables, formulas, or other elements that make typesetting complicated and time consuming

V. Type — Characters used singly or collectively to create words, sentences, paragraphs, blocks of copy, etc.

W. Typeface — A particular style or design of type

X. Type size — The height of a typeface measured from the bottom of its descenders to the top of its ascenders

Y. Typography — The art and science of working with type

Z. Uppercase — Capital letters of the alphabet

AA. Widow — End of a paragraph or column that is undesirably short

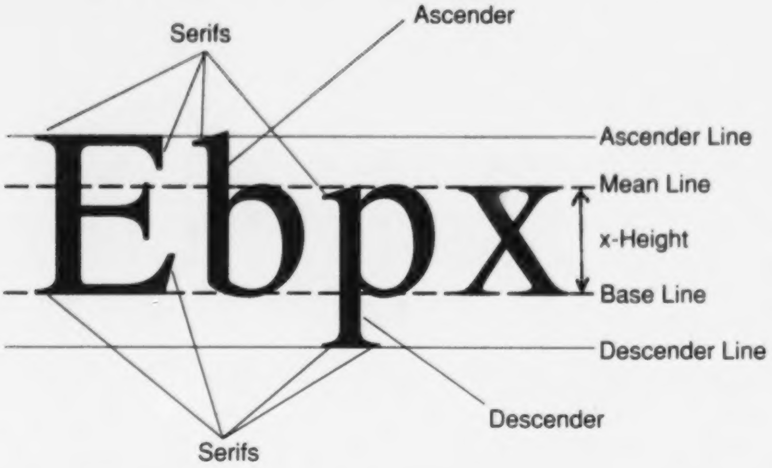
BB. Wordspacing — Amount of space between words

CC. x-height — The distance between the base line and mean line of type; the height of a lowercase letter excluding the ascenders or descenders

INFORMATION SHEET

II. Parts of a type character (Transparency 1)

A. Different parts of a type character have certain names


Serifs
Ascender
Ascender Line
Ebpx
Mean Line
x-Height
Base Line
Descender Line
Descender
Serifs

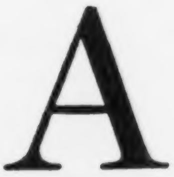
B. Most important parts are ascender, descender, and serif

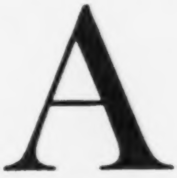
1. Ascenders and descenders help determine body size
2. Serifs help identify typefaces

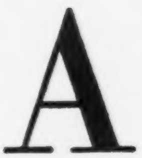
III. Type races (Transparency 2)

A. Roman

1. Variations include old style, modern, and transitional
2. All have serifs
3. All have both thick and thin strokes
4. Also called "serif"
5. Suitable for almost any application


Old Style Roman


Transitional Roman


Modern Roman

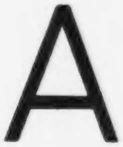
INFORMATION SHEET

B. Sans serif

1. Also known as Gothic or grotesque

   (NOTE: The French word *sans* means *without*; thus the term sans serif means without serifs.)

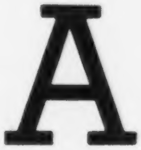
2. All strokes are nearly uniform
3. Simplest of all typeface designs
4. Popular for publication headings, posters and advertising designs



Sans Serif

C. Square serif

1. Has blocked or squared serifs
2. Consists of uniform strokes
3. Sometimes called "block" style or "slab serif"
4. Popular in advertising



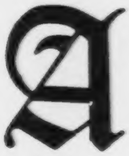
Square Serif

D. Text

1. Has a heavy, bold appearance
2. Styled after ornate hand lettering used more than 500 years ago
3. Also called Old English or black letter
4. Should not be set in all capital letters, as it is very difficult to read

INFORMATION SHEET

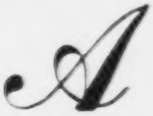
5. Used for newspaper nameplates, announcements, certificates



Text

E. Script

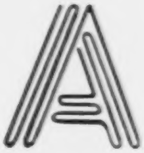
1. Has handwritten or hand-lettered effect
2. Popular for announcements and invitations
3. Also known as "cursive"
4. Should not be set in all capital letters, as it is very difficult to read



Script

F. Novelty

1. Consists of unusual designs that command attention
2. Used for display lines only, as it generally is not legible in small sizes
3. Creates a sense of mood, time, or decorative effect
4. Also called "decorative" or "specialty"



Novelty

IV. Type families

A. Each type race consists of subgroups, called families.

EXAMPLE: The sans serif group includes such families as Helvetica, Futura, Avant Garde.

INFORMATION SHEET

B. Type is ordered by family name.

C. Families may have a number of variations involving weight, width, and posture.

(NOTE: A few typefaces offer such variations as shaded, shadowed and outlined, but these are not usually thought of as family variations; instead, they may be cassified as novelty.)

1. Weight variations refer to type styles designed with thinner or thicker strokes, such as light, demibold, bold and extrabold.

   (NOTE: Boldface is the most common weight variation.)

2. Width variations refer to the condensing (narrowing) and extending (widening) of the letters.

3. Posture refers to upright and italic.

   (NOTE: Typefaces that are slanted to their right are referred to as *italic* in contrast to normal, upright posture. Trade practice dictates that upright is assumed unless typesetting specifications state otherwise.)

Futura Lt	ABCDEFGHIJKLMNOPQRSTUV
Futura Lt Ital	*ABCDEFGHIJKLMNOPQRST*
Futura Bld	**ABCDEFGHIJKLMNOP**
Futura Bld Cond	**ABCDEFGHJKLMNOPQRSTUVW**
Futura Bld Ital	***ABCDEFGHJKLMN***
Futura Exbld Cond	**ABCDEFGHIJKLMNOP**
Futura Exbld Cond Ital	***ABCDEFGHJKLMN***
Futura Exbld Ital	***ABCDEFGHIJ***

V. **Measuring type** (Transparencies 3 and 4)

A. Units of measurement

1. Point

   a. Smallest unit of measurement

   b. Used to measure type body size and leading

   c. Approximately 1/72 of an inch

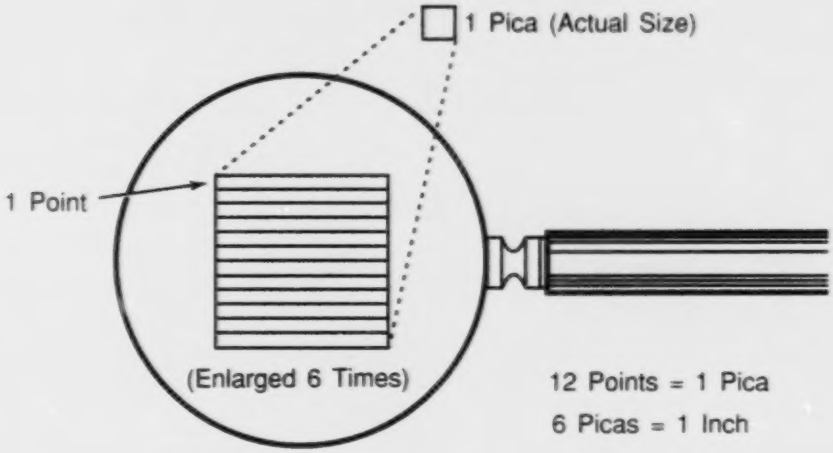
2. Pica

   a. Equal to exactly 12 points

   b. Used to measure line length, depth of columns, size of margins, size of illustrations

INFORMATION SHEET

c. Six picas equal approximately one inch

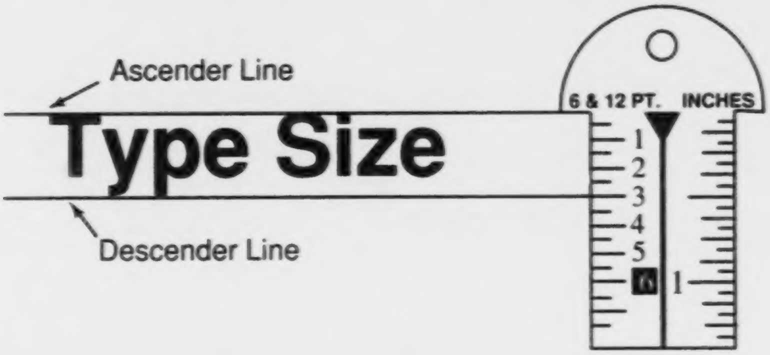

1 Pica (Actual Size)
1 Point
(Enlarged 6 Times)

12 Points = 1 Pica
6 Picas = 1 Inch

B. Type size

1. Refers to height of the particular type
2. Measured in points, with a line gauge
3. Measured from the bottom of descenders to the top of ascenders

   (NOTE: Type 12 points or smaller is known as *body* or *text* type, while type 14 points or larger is known as *display* type. The most widely used sizes range from 6 points to 72 points.)


Ascender Line
Type Size
Descender Line
6 & 12 PT.
INCHES
1
2
3
4
5
6
1

C. Line length

1. Also known as *measure* or *column width*
2. Measured in picas, with a line gauge

INFORMATION SHEET

3. For body copy, should be approximately 1½ times the type size being used

   (NOTE: This allows for optimum readability.)

   EXAMPLE: 10 point type should be set 15 picas wide.

D. Line depth

1. Measured from base line to base line
2. Measured in points, with a line gauge

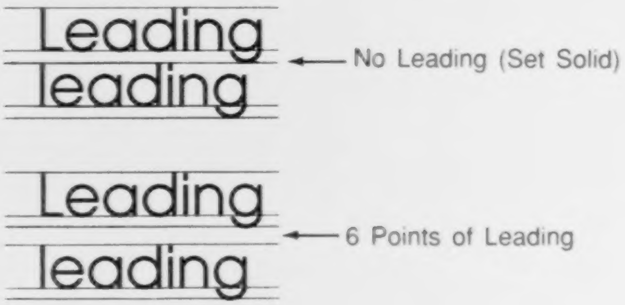
E. Leading

1. Space between lines of type; measured from descender line to ascender line

   (NOTE: Leading equals line depth minus type size.)

2. Affects appearance and readability of copy
3. Measured in points, with a line gauge
4. Leading of 0 to 2 points for body type is common practice in the industry

   (NOTE: *Set solid* means set without leading, i.e., 12 point type set with 12 point line depth. Modern typesetting equipment can set one line of type on top of another, called *negative leading*, but it is seldom appropriate.)



INFORMATION SHEET

F. Horizontal spacing

1. Wordspacing — Amount of spacing between words

   (NOTE: This is now done automatically by the typesetting equipment.)

2. Letterspacing — Amount of spacing between letters of a word

   LETTERSPACING
   Minus 1.5 points

   LETTERSPACING
   Normal

   LETTERSPACING
   2 points

   LETTERSPACING
   4 points

   LETTERSPACING
   6 points

3. Indentation — White space set in a fixed interval from the margin to separate paragraphs

   a. The most common indentation is 1 em

      (NOTE: An em is a square of the type size being set; for example, a 10-point em is 10 points wide and 10 points high.)

   b. When paragraph indentations are not used at all, extra line space is left between paragraphs

      (NOTE: These are referred to as *block paragraphs*.)

   c. Hanging indents are paragraphs in which the first line is set flush left and subsequent lines are indented, usually 2 or 3 ems

   d. Initial letter indentation is done to accommodate an oversized character that begins the first word of a body of copy for decoration or emphasis

      Initial letter indentation allows space to accommodate an oversized character at the beginning of a body of copy to emphasize or provide a decorative effect.

INFORMATION SHEET

VI. Formats of type composition

(NOTE: Formats are ways of arranging lines of type.)

A. Centered

1. Aligned at the mid-line
2. Spaced equal distance from both ends of each line
3. Used mostly for display type or body type in advertisements

LAMPS
for photographic equipment
send for our complete list of all ANSI
coded lamps manufactured in the U S for
audio/visual, photo, & studio use
FAST SERVICE – LIBERAL DISCOUNTING
NATIONWIDE PHOTOLAMP SUPPLY CO.

B. Flush left

1. Also known as *ragged right* or *quad left*
2. All lines are aligned on the left end and are ragged on right end

And, whether you choose condenser illumination,
diffusion or a powerful dichroic color head,
you'll find that the illumination is incredibly even,
corner-to-corner. The reason's the same: extra care in

C. Flush right

1. Also known as *ragged left* or *quad right*
2. All lines are aligned at right end
3. Lines begin randomly on left end

When you need lots of light for lots of
depth of field, Broncolor's got it. The in-
credibly efficient Broncolor 606 gets a
guide number for 945 out of 6,000 watt
seconds, for an aperture of f/157 at 6
feet with ASA 100 film (f/120 + ½ stop),
with 55° standard reflector. The compa-
rable figure for the 1500 watt second
Broncolor 404 is a healthy f/79!

INFORMATION SHEET

D. Justified

1. All lines are even, or flush, at both ends
2. Indentation may, or may not, be used for first line of paragraph

> The third area of potential stress touched on in these articles revolves around the delegation of tasks, as discussed by Donald Haws. Although few managers doubt the logic of the "anti-instinctive" aspects of the managerial role, the difficulty arises when the necessity occurs to *do* it. It is then that the dual components of any delegated task become evident: a) the *responsibility* of the

E. Runaround

1. Lines are shortened where needed to go around an illustration or photo
2. May be part of another format

> Within this framework, we consider the question confronting the moving image producer at the start of the decade of the Eighties, to wit: "Shall we use film or video?"

> A decade ago, the answer was more or less clear-cut. Video was the province of broadcasters and amateurs. Film was the only medium for the information producer who wanted to work in the real world, rather than in the "artificial" confines of a studio, who wanted maximum flexibility and creative control in shooting and editing, and who would settle for nothing less than a first quality finished product at a cost effective price.

3. May be contoured to fit around an irregularly shaped illustration (contoured wrap)

F. Molded

1. Body type formed into a distinctive shape

   EXAMPLE: Word search puzzles are often printed in shapes.

2. Can be distracting and hard to read

G. Tabular

1. Also known as *multiple justification*

INFORMATION SHEET

2. Figures or letters are set in columns across the page

	Percent Reporting Expenditure	Avarage Expenditure	Total Expenditure
Purchased Equipment, Materials or Services	96.3%	$30,728	$1,250,470,600
Equipment			
Purchasing	84.0	12,460	442,320,500
Rental	91.1	1,435	11,583,100

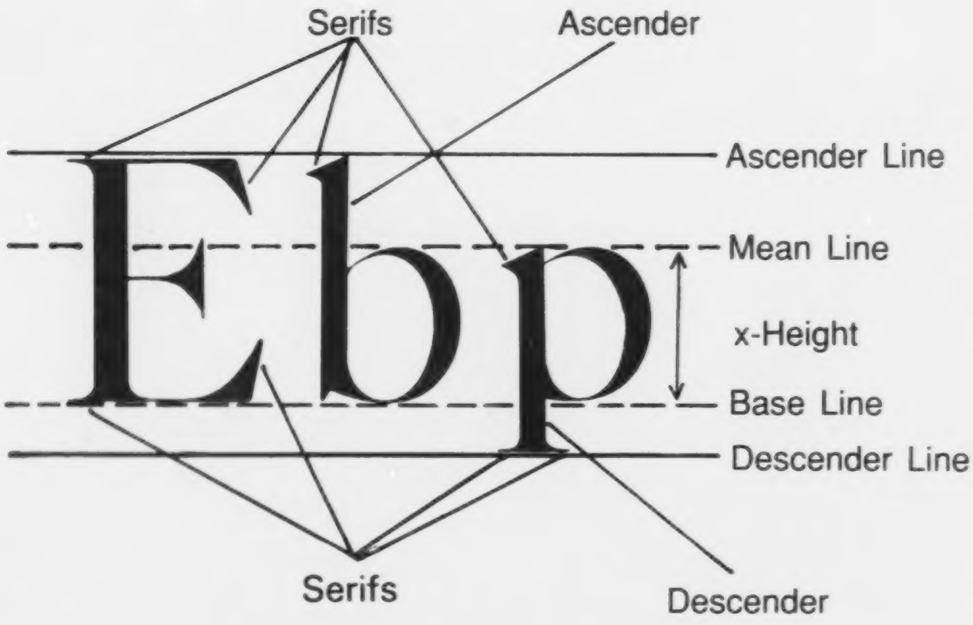
H. Ruled form

1. Cross-ruled part of form may be done separately

2. May be part of another format

FOLD PLATE	W S	
	DEPTH	WIDTH
A	12¾"	14"
B	10	14
C	8½	10
D	8½	10
E	8½	10
F	8½	10

Parts of a Type Character


Serifs
Ascender
Ascender Line
Ebp
Mean Line
x-Height
Base Line
Descender Line
Serifs
Descender

TM 1

GI-177

Races of Type

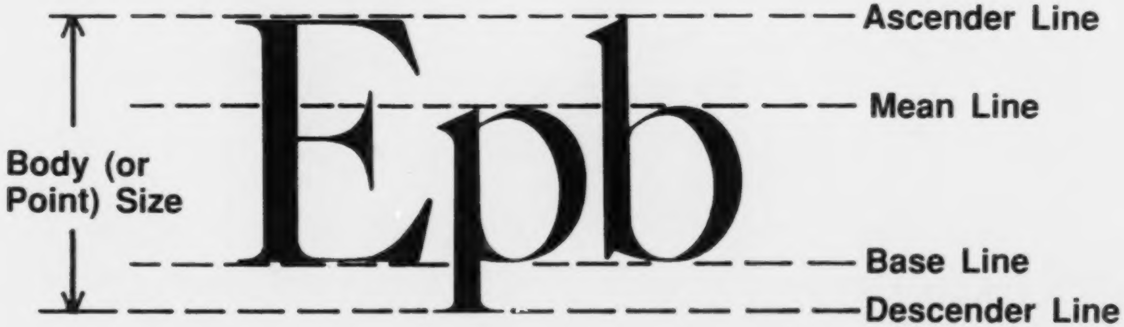
Bodoni Book ABCDEFGHIJKLMNOPQRSTU	12	**Roman or Serif**
Caledonia ABCDEFGHIJKLMN	12	
Cooper Old Style ABCDEFGHIJKLM	12	
Clarendon Bd Ex	**12**	**Square Serif**
Karnak Black Condensed ABCDEFGHIJKL	**12**	
Stymie Medium ABCDEFGHIJKLM	12	
Bank Script ABCDEFG	12	**Script or Cursive**
Stradivarius ABCDEFGHI	12	
Liberty ABCDEFGHIJ	12	
Helvetica Bld Ext ABCDEFGH	**12**	**Sans Serif or Gothic**
Impact ABCDEFGHIJJKLMNOPQR	**12**	
Standard Extra Lt Ext ABCDEF	12	
Old English ABCDEFGHIJKLMNO	12	**Text**
American Text ABCDEFGHIJKLMNOPQR	12	
Wedding Text ABCDEFGHIJKLMNOPQ	12	
Charleston ABCDEFGHIJKLMN	12	**Novelty**
FONTANESI ABC	12	
GRAPHIQUE ABCDEFGHIJKLMNOPQRSTUV	12	
THUND AB	**12**	
STENCIL ABCDEFG	**12**	

Type Sizes

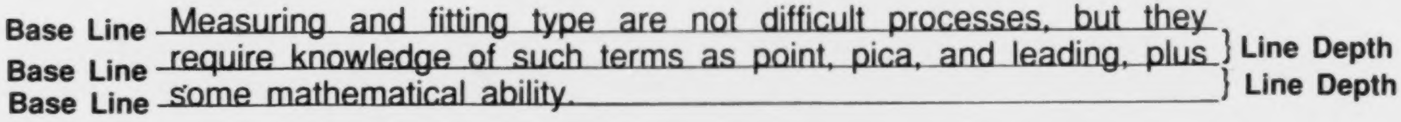
This is 6 point type.
This is 8 point type.
This is 9 point type.
This is 10 point type.
This is 12 point type.
This is 14 point type.
This is 18 point type.
This is 24 point type.
This is 36 point type.
This is 48 point
This is 60 point
This is 72 po
This is 84
This is 96

Measuring Body Size and Line Depth

Measure Body Size from Top of Ascender to Bottom of Descender.


Ascender Line
Mean Line
Body (or Point) Size
Epb
Base Line
Descender Line

Measure Line Depth from Base Line to Base Line.


Base Line
Base Line
Base Line
Line Depth
Line Depth

Measuring and fitting type are not difficult processes, but they require knowledge of such terms as point, pica, and leading, plus some mathematical ability.

TYPOGRAPHY
UNIT VI

ASSIGNMENT SHEET #1 — IDENTIFY TYPE RACES IN PRINTED MATERIAL

Name ______________________________ Score ______________

A good way to become familiar with typefaces is to identify examples in magazines, newspapers and other publications.

Directions: Collect as many examples of the six different type races listed below as possible. Paste these on separate sheets and label with the appropriate names.

A. Roman

B. Sans serif

C. Square serif

D. Text

E. Script

F. Novelty

TYPOGRAPHY
UNIT VI

ASSIGNMENT SHEET #2 — MEASURE TYPE

Name ______________________________ Score ______________

Directions: Using a line gauge, measure the type copy shown below and write the appropriate answer for each.

Line Length

1.	_____ picas wide	Measuring and fitting type are not difficult processes, but they require know-
2.	_____ picas wide	Measuring and fitting type are not difficult processes, but they require knowledge of the mean-
3.	_____ picas wide	Measuring and fitting type are not difficult processes, but they require knowledge of the meaning of various terms

Type Size

4.	_____ points	Calculations. As a result, your prediction of
5.	_____ points	The Typewritten Copy
6.	_____ points	Typewritten Copy

Leading and Line Depth

7. _____ point body type size

8. _____ point line depth

9. _____ point leading

Measuring and fitting type are not difficult processes, but they require knowledge of the meaning of such terms as point, pica, measure, leading, and justify, and some mathematical

TYPOGRAPHY
UNIT VI

ASSIGNMENT SHEET #3 — IDENTIFY FORMATS OF TYPE COMPOSITION

Name ______________________________ Score ______________

Directions: Collect samples of different formats of type composition. They may be cut out of magazines or newspapers or photocopied from books. Paste these on plain white paper and label as to format. Find at least one of each of the following:

A. Centered

B. Flush left

C. Flush right

D. Justified

E. Runaround

F. Molded

G. Tabular

H. Ruled form

TYPOGRAPHY
UNIT VI

ANSWERS TO ASSIGNMENT SHEETS

Assignment Sheet #1

The student should have several examples for each of the six listed type races. They should be correctly identified within the limits of information provided. For example, the sans serif category should not have any examples with serifs.

Assignment Sheet #2

1. 15
2. 19½
3. 22½
4. 11
5. 14
6. 30
7. 12
8. 18
9. 6

Assignment Sheet #3

Students should have located and correctly labeled at least one example of each of the eight formats.

TYPOGRAPHY
UNIT VI

TEST

Name ______________________________ Score ______________

1. Match the terms on the right with the correct definitions.

_____a. Printer's ruler that is calibrated in picas, points, and inches

_____b. Unit of measurement equaling $\frac{1}{6}$ of an inch or 12 points

_____c. Unit of measurement equaling approximately $\frac{1}{72}$ of an inch or $\frac{1}{12}$ of a pica; used to express type size or leading

_____d. The art and science of working with type

_____e. Characters used singly or collectively to create words, sentences, paragraphs, blocks of copy, etc.

_____f. A particular style or design of type

_____g. Individual letters, numerals, punctuation marks or other symbols

_____h. All the characters of a particular typeface

_____i. All the type styles of a particular typeface

_____j. The height of a typeface measured from the bottom of its descenders to the top of its ascenders

_____k. Type 12 points and smaller

_____l. Type 14 points or larger

_____m. Amount of space between letters

_____n. Amount of space between words

_____o. The width of a line of type

1. Ascender
2. Body type
3. Characters
4. Descender
5. Dingbat
6. Display type
7. Family
8. Font
9. Kerning
10. Leading
11. Letterspacing
12. Line gauge
13. Lowercase
14. Measure
15. Pica
16. Point
17. River
18. Serifs

TEST

_____p. The space between lines of type

_____q. End of a paragraph or column that is undesirably short

_____r. Adjusting the letterspacing between certain letters to make them appear better fitted together

_____s. Short cross-strokes that project out at the end of the main letter strokes in some typefaces

_____t. The part of a lowercase letter that goes below the x-height, as in g, j, p, q, and y

_____u. The part of a lowercase letter that rises above the x-height, as in b, d, f, h, k, l, and t

_____v. The distance between the base line and mean line of type; the height of a lowercase letter excluding the ascenders or descenders

_____w. Body type set in normal paragraph form in contrast to tabular matter

_____x. Charts, tables, formulas, or other elements that make typesetting complicated and time consuming

_____y. Distracting pattern of white space running vertically down through body copy

_____z. Capital letters of the alphabet

_____aa. Small letters of the alphabet

_____bb. Capital letters that are the same size as the x-height of the typeface

_____cc. A typographic decorative device such as a bullet or star

19. Small caps
20. Straight matter
21. Tabular matter
22. Type
23. Typeface
24. Type Size
25. Typography
26. Uppercase
27. Widow
28. Wordspacing
29. x-height

TEST

2. Identify parts of a type character from the illustration below by placing the appropriate numbers in the proper blanks.

_____a. Ascender line

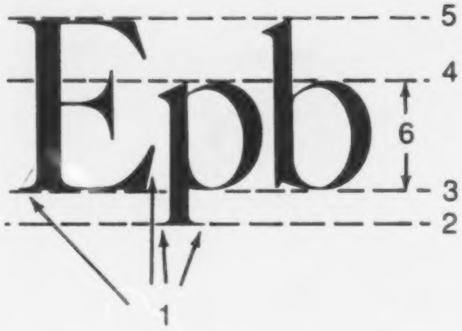
_____b. Base line

_____c. Descender line

_____d. Mean line

_____e. Serifs

_____f. x-height



3. Identify the races of type shown by placing the appropriate numbers in the correct blanks.

_____a. Roman

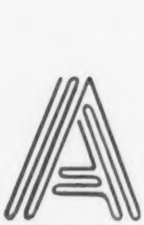
_____b. Sans serif

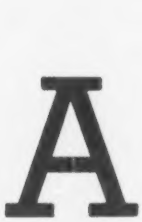
_____c. Script

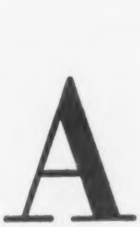
_____d. Novelty

_____e. Square serif

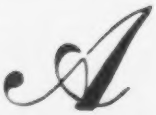
_____f. Text

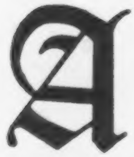
1. 

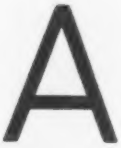
2. 

3. 

TEST

4.


5.


6.


4. Complete the following statements concerning type families by writing the missing word(s) in the blanks.

   a. Each type race consists of subgroups, called _______________.

   b. _______________ is ordered by family name.

   c. Families may have a number of _______________ involving weight, width and posture.

   d. Weight variations refer to type styles designed with _______________ or _______________ strokes.

   e. _______________ variations refer to the condensing or extending of the letters.

   f. Posture refers to upright and _______________.

5. Complete the following statements concerning the measurement type by circling the correct words.

   a. The smallest unit of measurement is the (**point**, **pica**).

   b. Points are used to measure (**type size**, **line length**).

   c. 1 pica = (**6**, **12**, **72**) points.

   d. 6 picas = 1 (**point**, **inch**).

   e. Type size is measured (**from bottom of descender to top of ascender**, **by height of capital letter**).

   f. Line length is also known as (**leading**, **measure**).

   g. Leading is measured in (**picas**, **points**).

   h. The amount of spacing between letters is (**wordspacing**, **letterspacing**).

   i. The most common indentation is 1 (**em**, **en**).

TEST

6. Identify the following formats of type composition by writing the correct names in the blanks.

Copy must occasionally be arranged
to fit around a
photograph or
illustration. This
format has a
name. It is very
effective when
used properly, but should not be over-
used, or it will lose its appeal and value.

a. ______________________

Sometimes it is necessary to type
copy in different arrangements
to fit the page or space available.
These different arrangements are
called formats.

b. ______________________

THIS IS A SAMPLE
OF TYPE
SET ON THE IBM
COMPOSER
Univers Type - 11 pt. Medium

c. ______________________

Now is the time for all good men to come to the aid of their country. Now is the time for all good men to come to the aid of their country.

d. ______________________

Many type styles are available for use on the IBM
Composer. Sizes may range in points from 6 to
12. The shift should never be in the locked position
when changing elements. Otherwise the element
may be damaged.

e. ______________________

(NOTE: If the following activities have not been accomplished prior to the test, ask your instructor when they should be completed.)

7. Identify type races in printed material. (Assignment Sheet #1)

8. Measure type. (Assignment Sheet #2)

9. Identify formats of type composition. (Assignment Sheet #3)

TYPOGRAPHY
UNIT VI

ANSWERS TO TEST

1. a. 12
   b. 15
   c. 16
   d. 25
   e. 22
   f. 23
   g. 3
   h. 8
   i. 7
   j. 24
   k. 2
   l. 6
   m. 11
   n. 28
   o. 14
   p. 10
   q. 27
   r. 9
   s. 18
   t. 4
   u. 1
   v. 29
   w. 20
   x. 21
   y. 17
   z. 26
   aa. 13
   bb. 19
   cc. 5

2. a. 5
   b. 3
   c. 2
   d. 4
   e. 1
   f. 6

3. a. 3
   b. 6
   c. 4
   d. 1
   e. 2
   f. 5

4. a. Families
   b. Type
   c. Variations
   d. Thinner, thicker
   e. Width
   f. Italic

5. a. Point
   b. Type size
   c. 12
   d. Inch
   e. From bottom of descender to top of ascender
   f. Measure
   g. Points
   h. Letterspacing
   i. Em

6. a. Runaround
   b. Flush right
   c. Centered
   d. Justified
   e. Flush left

7.-9. Evaluated to the satisfaction of the instructor

TYPESETTING
UNIT VII

UNIT OBJECTIVE

After completion of this unit, the student should be able to distinguish between various composition methods, calculate copyfitting, mark up copy and set type. Competencies will be demonstrated by completing the assignment sheets, job sheets, and the unit tests with a minimum score of 85 percent.

SPECIFIC OBJECTIVES

After completion of this unit, the student should be able to:

1. Match terms related to typesetting with their correct definitions.
2. List composition methods.
3. Match composition methods with the correct advantages or disadvantages.
4. Select true statements concerning the typesetting process.
5. Select true statements concerning copyfitting.
6. Select true statements concerning marking up copy.
7. Calculate copyfitting. (Assignment Sheet #1)
8. Mark up copy. (Assignment Sheet #2)
9. Demonstrate the ability to:
    a. Set type using a phototypesetting machine. (Job Sheet #1)
    b. Set type using a microcomputer. (Job Sheet #2)

TYPESETTING
UNIT VII

SUGGESTED ACTIVITIES

A. Obtain additional materials and/or invite resource people to class to supplement/reinforce information provided in this unit of instruction.

(NOTE: This activity should be completed prior to the teaching of this unit.)

B. Make transparencies from the transparency masters included with this unit.

C. Provide students with objective sheet.

D. Discuss unit and specific objectives.

E. Provide students with information and assignment sheets.

F. Discuss information and assignment sheets.

(NOTE: Use the transparencies to enhance the information as needed.)

G. Provide students with job sheets.

H. Discuss and demonstrate the procedures outlined in the job sheets.

I. Integrate the following activities throughout the teaching of this unit:

1. Show samples of hand-set type or hot metal slugs and then compare to transfer type and phototypesetting "fonts."
2. Show trade literature on typesetting equipment.
3. Show type specimen books.
4. Plan a field trip to a "type house" or newspaper, commercial printer or in-house composing department that uses some of the typesetting equipment referred to in this unit.
5. Have students make a survey of the kinds of typesetting equipment used in area shops.
6. Meet individually with students to evaluate their progress through this unit of instruction, and indicate to them possible areas for improvement.

J. Give test.

K. Evaluate test.

L. Reteach if necessary.

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E. Dennis, Ervin A. *Lithographic Techniques*. Indianapolis, IN: Bobbs-Merrill Company, Inc., 1980.

TYPESETTING
UNIT VII

INFORMATION SHEET

I. **Terms and definitions**

A. Character count — Number of characters in a pica, inch or line; it is different for each typeface and size and varies with extending or condensing

B. Cold type — Type produced by means other than hot metal

C. Compose (typeset) — To set type by any method

D. Composition — Type that has been set

E. Compositor (typesetter) — The individual who sets type

F. Copy (manuscript) — Any written material needing to be typeset

G. Copyfit — To calculate how much space a given amount of copy will occupy when set in a specified size and typeface

H. Cursor — Indicator that locates on the VDT screen where the next action will take place

I. Digital type — Characters, such as from a laser printer or phototypesetter, made up of thousands of lines or dots positioned by a computer

J. Floppy disk — A small, flexible plastic disk that stores data magnetically after the typesetting computer has been switched off

K. Format — Specifications that the typesetter translates into computer-specific codes to perform rapid setup of type size, style, line width, leading, indents or a combination of these functions

L. Hard copy — Copy on paper as opposed to the "soft" copy in electronic memory

M. Hot type — Type composed by machine from molten metal; sometimes includes handset type

N. h&j — Hyphenation and justification

O. In-house composition — Typesetting done in the offices of organizations requiring printed materials

P. Keyboard — Primary computer input device including character keys, numeric keys, direction keys and other special keys for typographic commands

Q. Laser — Acronym for light amplification by stimulated emission of radiation

INFORMATION SHEET

R. Laser printing — A type of electrostatic printing in which the image is created by modulating a laser on and off according to digital information from a computer

S. Mark up — To indicate on layout or copy instructions for typesetting

T. Modem — Device to connect one computer to another via telephone lines

U. Mouse — Small device used to move the cursor on a computer screen

V. OCR (optical character recognition) — A scanner that reads typed manuscripts and produces a magnetic or perforated tape or electronic signals from which type can be set

W. Pagination — Electronic generation of text and graphics that allows layout and design of multiple pages of a publication to be done on a VDT

X. Specifications — Instructions about the typeface, size, style, leading, measure, arrangement, etc.

Y. Type house — A business that sets type

Z. Type specimen book — Book showing examples of all typefaces available from a type shop

AA. VDT (video display terminal) — A cathode-ray tube keyboard-operated device for displaying copy, making corrections, combining copy elements and performing other typesetting functions

BB. WYSIWYG — Abbreviation for "What You See Is What You Get"; a VDT in which the type on the screen resembles the final output

II. **Composition methods**

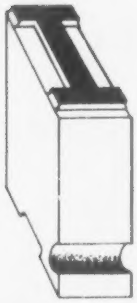
A. Hot type — Traditional method of composition; can be printed directly onto surface of paper

(NOTE: Hot type refers to cast metal type whether set by hand or machine.)

INFORMATION SHEET

1. Hand-set or foundry composition

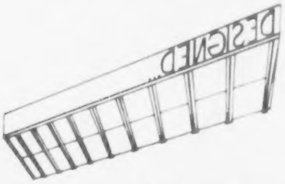
   (NOTE: Individual metal or wood characters are assembled into lines much as Gutenberg invented about 1450.)



Hand-Set Character

2. Machine-set (Can be produced on any of four machines: Linotype, Intertype, Monotype, Ludlow type)

   (NOTE: When introduced about 100 years ago, line-casting machines revolutionized the printing industry.)



Linotype/Intertype Slug

B. Cold type — Main method of composition today; any copy that can be photographed

1. Hand lettering
2. Transfer type and press-on lettering
3. Strike-on composition

   (NOTE: Several machines can be used, including typewriters and computer daisywheel or dot matrix printers.)

4. Photographic typesetting (Transparency 1)

   (NOTE: Phototypesetting is a photographic process; letter images are recorded on light sensitive paper or film that is then developed and printed. Depending on the machine, each letter is set by hand [photolettering] or set automatically using a keyboard [photocomposition]. Computers drive photocomposition systems today.)

5. Digitized typesetting (Transparency 2)

   (NOTE: A computer-driven, digital typesetter stores type fonts and symbols as digitized information, i.e. magnetic signals generating letters made up of thousands of tiny, overlapping lines, with output etched by a high-resolution laser that creates type. Machines can create type on photographic paper or dry-output, silverless paper.)

6. Microcomputer composition

   (NOTE: The introduction of "desktop publishing" in 1984 put the power of professional-quality typesetting and page production in the hands of personal computer users.)

III. Advantages and disadvantages of composition methods

(NOTE: Factors to consider when selecting a composition method are quality, speed, and cost.)

A. Hand-set or foundry composition — Slow and time-consuming; no longer widely used

B. Machine set — By today's standards, slow; offers limited choices of type styles and sizes, but still used for short letterpress jobs by a few printers and for premium typesetting jobs by a few type shops

C. Hand lettering — Used primarily in custom design work

D. Transfer type — Slow but popular method of preparing small amounts of distinctive display type; offers the greatest range of typefaces for the least money

   (NOTE: In addition to letters and numbers, sheets with borders, rules, symbols, ornaments, drawings, screens, etc., are also available.)

E. Strike-on composition — Low cost and adequate quality, but limited to text sizes only in small range of type styles

INFORMATION SHEET

F. Photographic typesetting — Major advantages of photocomposition are excellent image quality, wide choice of type styles and sizes, speed, versatility and low cost.

(NOTE: Photolettering is ideal for producing quality headlines for comps and low-budget, fast turn-around jobs.)

G. Digitized typesetting — Offers tremendous advantages, including high speed, excellent image quality, wide choice of type styles and sizes, and ability to output both type and graphic information

H. Microcomputer composition — Coupled with laser printers, puts typesetting into the hands of writers and editors

(NOTE: Microcomputers output to low resolution plain paper laser printers and high resolution photographic imagesetters.)

IV. The typesetting process

A. Where typesetting is done

1. Independent "type houses"
2. Printers
3. Quick-copy shops
4. Publishers of newspapers, magazines and books
5. In-house (organizations with own typesetting facilities)

B. How copy is delivered to typesetter

1. As handwritten material
2. As typed manuscript
3. By electronic options such as interfacing via floppy disk or modem

(NOTE: For anyone planning a career in any activity connected with typesetting, a basic knowledge of working with computer terminals and systems is essential.)

C. Factors affecting cost of typesetting

1. Condition of copy
2. Amount of keyboarding required

INFORMATION SHEET

    3. Complexity of copy

    4. Deadline

    5. Number of changes and corrections

  D. Factors affecting quality

    1. Type should meet quality standards appropriate to the job.

    2. Fuzzy type can come from strike-on printers using cloth instead of carbon ribbons, dot matrix printers that are out of alignment, and photo units that are out of focus.

    3. Broken characters can come from poor quality transfer and press-on lettering, scratched font negatives and digital disks with flawed sectors.

    4. Lines of type may not be parallel to each other if paper goes through the processor's feeder mechanism with uneven tension.

    5. Type of paper influences the reproduction quality of type.

V. Copyfitting

  A. Calculating total typewriter characters in job to be typeset

    1. Typewriter character count method

      a. Elite typewriter type has 12 characters per inch, so multiply line length by 12, times number of lines.

      b. Pica typewriter type has 10 characters per inch, so multiply line length by 10, times number of lines.

      (NOTE: This is not the same as a pica measurement.)

      c. For a proportional typewriter, look for manufacturer's specifications, or use character count method. See part 2.

    2. Vertical line method

      a. Draw a vertical line down the typewritten copy at the end of the shortest full line of type.

      b. Count the characters in that line, and multiply by the number of lines.

      (NOTE: Count a short line at the end of a paragraph as a full line.)

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c. Add to the product the number of characters on the right side of the line for total character number.

(NOTE: Copy submitted to a printer should always be typed.)

B. Converting typewritten characters to typesetting

1. Determine type size and type characters per pica from the catalogue, i.e., 2.5 characters per pica.

2. Determine line measure, i.e., 30 picas wide.

3. Determine number of typeset characters in each line, i.e., 2.5 characters × 30 picas wide.

4. Determine number of lines of typeset copy that will be required to set all of typewritten copy.

C. Depth of copy

1. Determine if copy is to be set solid or leaded.

2. Calculate leading plus type point size times number of lines for depth of typeset copy.

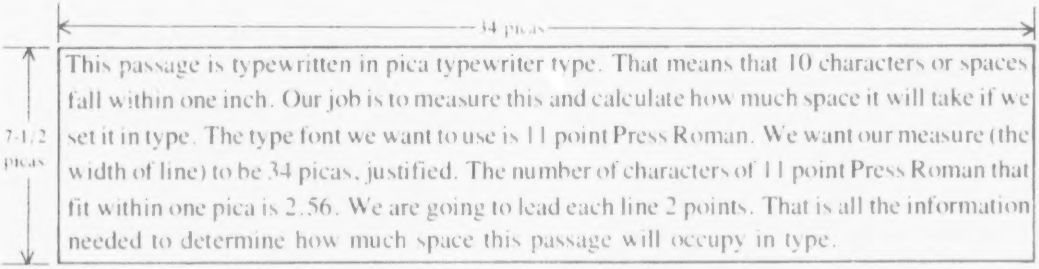
EXAMPLE: Translating copy space to type space

This passage is typewritten in pica typewriter type. That means that 10 characters or spaces fall within one inch. Our job is to measure this and calculate how much space it will take if we set it in type. The type font we want to use is 11 point Press Roman. We want our measure (the width of line) to be 34 picas, justified. The average number of characters of 11 point Press Roman that fit within one pica is 2.56. We are going to lead each line 2 points. That is all the information needed to determine how much space this passage will occupy in type.

Step 1 — Measure each line or use vertical rule method and determine number of characters in passage.
Step 2 — Divide the total number of characters by 2.56 to determine total number of picas in printed passage.
Step 3 — Divide total number of picas by 34 (the number of picas in the line to be printed) to obtain the number of lines in the passage.
Step 4 — Multiply number of lines by 13 points (11 points plus 2 points leading to obtain depth of passage in points; then convert to picas by dividing by 12.

INFORMATION SHEET

Your calculations will show that there are 544 characters in the passage, that will occupy 212.54 picas in 11 point Press Roman, or a little more than six 34-pica measure lines each 13 points deep, or a total of 91 points or almost exactly 7½ picas deep. So the following block should contain the passage, 34 picas wide and 7½ picas deep.



This passage is typewritten in pica typewriter type. That means that 10 characters or spaces fall within one inch. Our job is to measure this and calculate how much space it will take if we set it in type. The type font we want to use is 11 point Press Roman. We want our measure (the width of line) to be 34 picas, justified. The number of characters of 11 point Press Roman that fit within one pica is 2.56. We are going to lead each line 2 points. That is all the information needed to determine how much space this passage will occupy in type.

VI. Marking up copy

A. Specify type ("spec" copy).

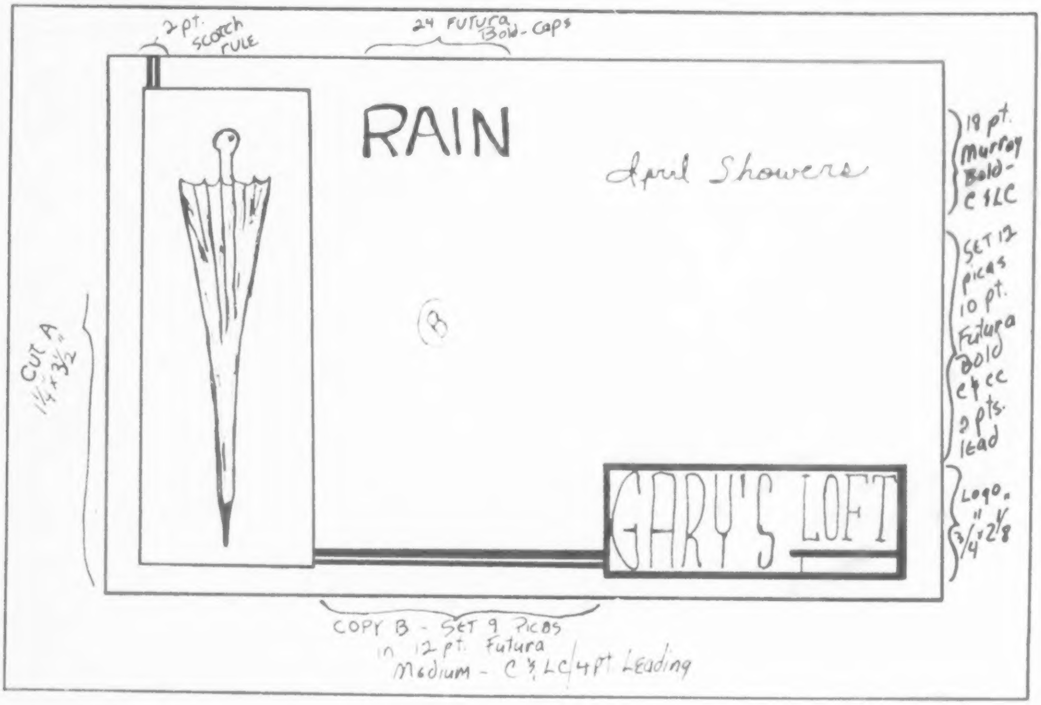
1. Mark instructions in margins, not on copy.
2. Use letters or numbers to key layout elements to copy.
3. Mark type style and size for text and display copy.

   (NOTE: Trade practice dictates that normal upright posture is assumed unless typesetting specifications state otherwise.)
4. Mark line measures and leading.
5. Mark whether to set flush left, flush right or centered.
6. Specify indentation and paragraph spacing.
7. Provide special instructions if necessary; i.e. letterspacing.

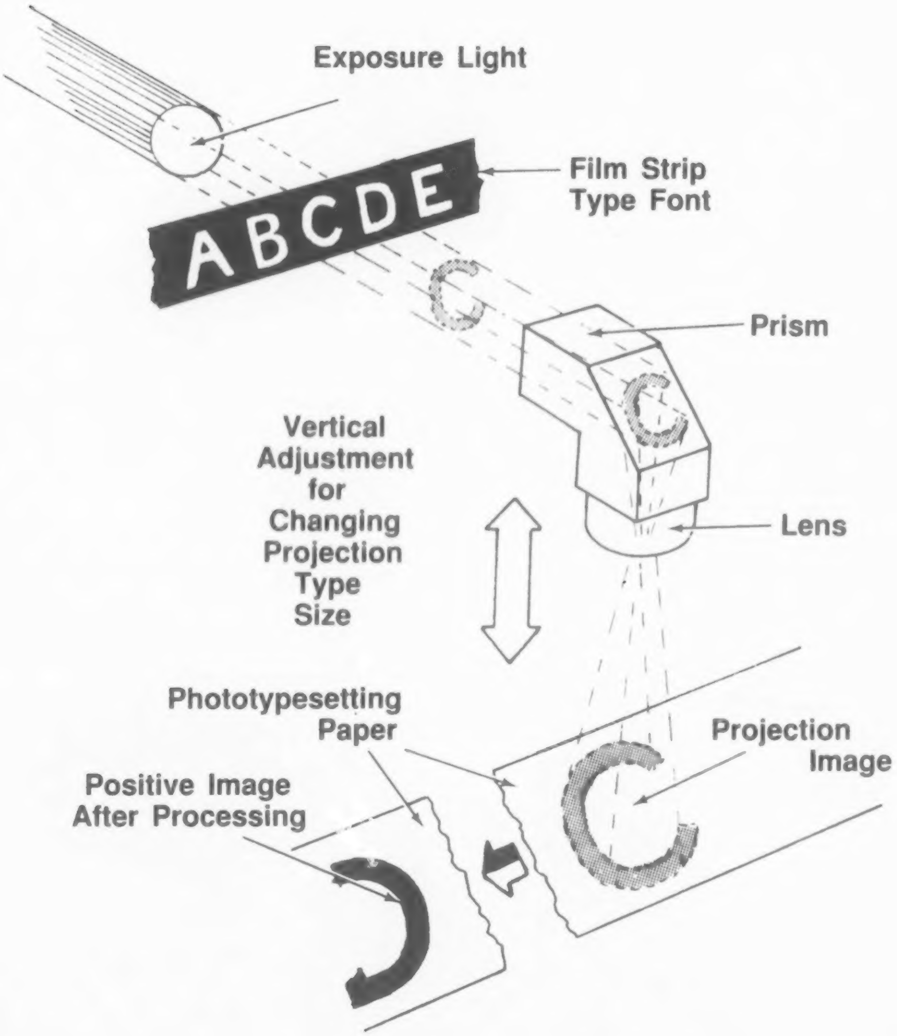
B. Read and correct copy with proper proofreading marks.

(NOTE: Proofreading is covered in Unit X.)

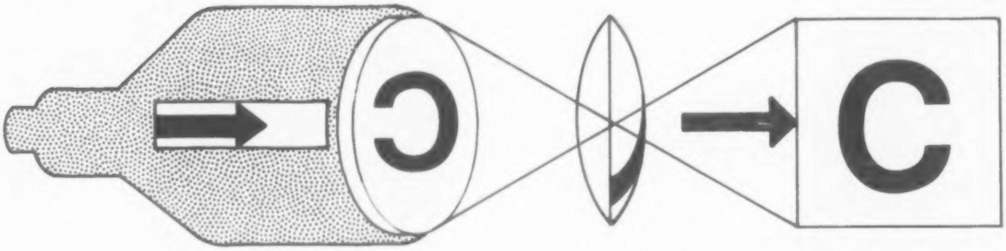
INFORMATION SHEET


2 pt. scotch rule
24 Futura Bold-Caps
RAIN
April Showers
18 pt. Murray Bold-C & LC
Set 12 picas 10 pt. Futura Bold C & LC 2 pts. lead
B
Cut A 1¼" × 3½"
GARY'S LOFT
Logo. ¾" × 2⅛"
COPY B - SET 9 PICAS in 12 pt. Futura Medium - C & LC/4 pt Leading

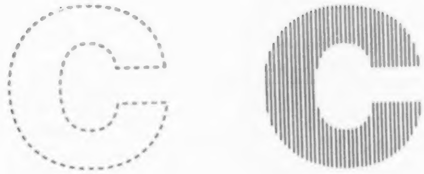
Projection Principle of the Photographic Typesetter


Exposure Light
Film Strip Type Font
ABCDE
C
Prism
Vertical Adjustment for Changing Projection Type Size
Lens
Phototypesetting Paper
Projection Image
Positive Image After Processing

Principle of the Digital Typesetter



The scanner "reads" the character and stores it as an outline.



The outline is then filled in with tiny lines.

TYPESETTING
UNIT VII

ASSIGNMENT SHEET #1 — CALCULATE COPYFITTING

Name ______________________________ Score __________

Directions: Calculate in picas the space the typewritten copy below will occupy if it is:

1. Set solid in 12 point Aldine Roman (2.5 characters per pica average) justified on a 24 pica measure.
2. Set solid in 9 point Press Roman (2.9 characters per pica average) justified on an 18 pica measure.
3. Set in 12 point on 15 Aldine Roman (2.5 characters per pica average) justified on a 30 pica measure.

Write your answers in the corresponding blanks.

1. ______________________________
2. ______________________________
3. ______________________________

Measuring and fitting type are not difficult processes, but they require knowledge of the meaning of such terms as point, pica, measure, leading and justify, and some mathematical ability. Also, you have to keep in mind that, although you are dealing with measurements as small as about 1/72 of an inch, you are still not going to be able always to predict exactly how much space a given piece of copy is going to occupy when it is set in type. The reason for this unpredictability is that, in type, different characters are of different widths, and (since it would take too much time to add up all the different widths of all the different characters) we use an average character width in our calculations. As a result, youf prediction of space to be occupied by type in a medium-length paragraph may be a line or so long or short. Still your prediction will be close enough to be able to make a good layout, and, with good editing, it is even possible to make it come out "on the nose."

TYPESETTING
UNIT VII

ASSIGNMENT SHEET #2 — MARK UP COPY

Name ______________________________ Score __________

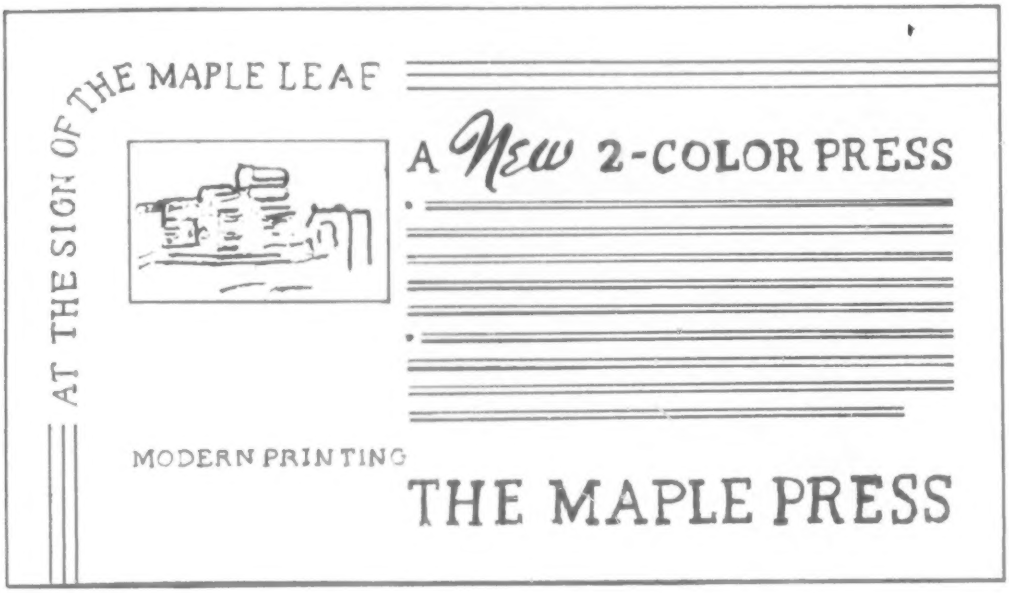
Directions: Mark up the layout shown below. Indicate all of the following:

a. Text type size and style

b. Width of columns in picas

c. Display type size and style

d. Leading


AT THE SIGN OF THE MAPLE LEAF
A New 2-COLOR PRESS
MODERN PRINTING
THE MAPLE PRESS

TYPESETTING
UNIT VII

ANSWERS TO ASSIGNMENT SHEETS

Assignment Sheet #1

1. 17 picas
2. 15 picas
3. 17½ picas

Assignment Sheet #2

The student should appropriately mark up the illustrated copy showing text type size and style, width of columns in picas, display type size and style, and leading. The mark-up should be legible and written in margins only.

TYPESETTING
UNIT VII

JOB SHEET #1 — SET TEXT TYPE USING A PHOTOTYPESETTING MACHINE

(NOTE: The application of this job sheet may be made to include the following variations to provide the student experience with: 1. different brands of photo-composition equipment and processors; 2. different formats to be set, such as justified, ragged, runarounds; 3. type selection for different kinds of jobs; 4. copyfitting. Manufacturers' instruction manuals should be referred to for different machines.)

A. Tools and materials:

1. Phototypesetting machine
2. Type image carrier
3. Line gauge
4. Copy furnished by instructor
5. Processor and chemicals

B. Procedure

1. Consult instruction manual for machine to be used.
2. Mark up copy from information given by instructor.
3. Determine format to copy.
4. Select type style and place font or film strip on machine.

   (NOTE: Instructor will demonstrate or aid you in this step.)
5. Set machine for type size, if necessary.
6. Set machine for leading.
7. Determine line length for copy to be set.
8. Change machine line length to appropriate position.
9. Ask instructor to check all settings.
10. Typeset copy, following directions as marked.
11. Prepare chemicals for processor, if necessary.
12. Run out necessary leader, and remove photo paper from typesetting machine.

JOB SHEET #1

13. Develop paper in processor.
14. Proofread copy.
15. Make corrections.
16. Turn in for evaluation.
17. Clean up all materials from areas used.

TYPESETTING
UNIT VII

JOB SHEET #2 — SET TYPE USING A MICROCOMPUTER

(NOTE: The application of this job sheet may be made to include the following variations to provide the student experience with: 1. different brands of microcomputers and printers; 2. different formats to be set, such as justified, ragged, runarounds; 3. type selection for different kinds of jobs; 4. copyfitting. Manufacturers' instruction manuals should be referred to for different computers and software.)

A. Tools and materials

1. Computer, such as Macintosh, IBM or IBM compatible
2. Copy furnished by instructor
3. Line gauge
4. Plain white or coated paper
5. Laser printer

B. Procedure

1. Consult instruction manuals for computer and software to be used.
2. Mark up copy from information given by instructor.
3. Turn on computer, open software and set for type style and size, format, leading and line length.
4. Ask instructor to check all settings.
5. Typeset copy, following directions as marked.
6. Turn on printer and load paper, if necessary.
7. Print.
8. Proofread copy.
9. Make corrections.
10. Turn in for evaluation.
11. Clean up all materials from areas used.

TYPESETTING
UNIT VII

PRACTICAL TEST #1 — SET TEXT TYPE USING A PHOTOTYPESETTING MACHINE

STUDENT'S NAME ______________________________ SCORE __________

EVALUATOR'S NAME ____________________________ ATTEMPT NO. ______

Instructions: When you are ready to perform this task, ask your instructor to observe the procedure and complete this form. All items listed under "Process Evaluation" must receive a "yes" for you to receive an acceptable performance evaluation.

PROCESS EVALUATION

(EVALUATOR NOTE: Place a check mark in the "Yes" or "No" blanks to designate whether or not the student has satisfactorily achieved each step in this procedure. If the student is unable to achieve this competency, have the student review the materials and try again.)

The student:	Yes	No
1. Marked up copy.	______	______
2. Set phototypesetting machine.	______	______
3. Typeset copy.	______	______
4. Developed copy.	______	______
5. Corrected copy.	______	______
6. Cleaned the work area.	______	______

EVALUATOR'S COMMENTS: ____

____

PRACTICAL TEST #1

PRODUCT EVALUATION

(EVALUATOR NOTE: Rate the student on the following criteria. If the student is unable to demonstrate mastery, student materials should be reviewed and another product must be submitted for evaluation. See suggested performance evaluation keys below.)

Option A

4 — Skilled — Can perform job with no additional training.
3 — Moderately skilled — Has performed job during training program; limited additional training may be required.
2 — Limited skill — Has performed job during training program; additional training is required to develop skill.
1 — Unskilled — Is familiar with process, but is unable to perform job.

Option B

Yes — Can perform job with no additional training
No — Is unable to perform job satisfactorily.

Criteria:	Rating:
Copy accurately marked and machine properly set up.	
Copy typeset and developed properly.	

EVALUATOR'S COMMENTS: ______________________________

____

TYPESETTING
UNIT VII

PRACTICAL TEST #2 — SET TEXT TYPE USING A MICROCOMPUTER

STUDENT'S NAME ______________________________ SCORE __________

EVALUATOR'S NAME ______________________________ ATTEMPT NO. ______

Instructions: When you are ready to perform this task, ask your instructor to observe the procedure and complete this form. All items listed under "Process Evaluation" must receive a "yes" for you to receive an acceptable performance evaluation.

PROCESS EVALUATION

(EVALUATOR NOTE: Place a check mark in the "Yes" or "No" blanks to designate whether or not the student has satisfactorily achieved each step in this procedure. If the student is unable to achieve this competency, have the student review the materials and try again.)

The student:	Yes	No
1. Marked up copy.	______	______
2. Set computer.	______	______
3. Typeset copy.	______	______
4. Printed copy.	______	______
5. Corrected copy.	______	______
6. Cleaned up work area.	______	______

EVALUATOR'S COMMENTS: ____

____

PRACTICAL TEST #2

PRODUCT EVALUATION

(EVALUATOR NOTE: Rate the student on the following criteria. If the student is unable to demonstrate mastery, student materials should be reviewed and another product must be submitted for evaluation. See suggested performance evaluation keys below.)

Option A

4 — Skilled — Can perform job with no additional training.
3 — Moderately skilled — Has performed job during training program; limited additional training may be required.
2 — Limited skill — Has performed job during training program; additional training is required to develop skill.
1 — Unskilled — Is familiar with process, but is unable to perform job.

Option B

Yes — Can perform job with no additional training.

No — Is unable to perform job satisfactorily.

Criteria:	Rating:
Copy accurately marked and computer properly set.	
Copy typeset and printed correctly.	

EVALUATOR'S COMMENTS: ______________________________

____

TYPESETTING
UNIT VII

TEST

Name ______________________________ Score __________

1. Match the terms on the right with the correct definitions.

_______a. Any written material needing to be typeset

_______b. Type produced by means other than hot metal

_______c. Type composed by machine from molten metal; sometimes includes handset type

_______d. A business that sets type

_______e. Typesetting done in the offices of organizations requiring printed materials

_______f. Book showing examples of all typefaces available from a type shop

_______g. To set type by any method

_______h. The individual who sets type

_______i. Type that has been set

_______j. Instructions about the typeface, size, style, leading, measure, arrangement, etc.

_______k. Hyphenation and justification

_______l. Indicator that locates on the VDT screen where the next action will take place

_______m. Primary computer input device including character keys, numeric keys, direction keys and other special keys for typographic commands

1. Character count
2. Cold type
3. Compose
4. Composition
5. Compositor
6. Copy
7. Copyfit
8. Cursor
9. Digital type
10. Floppy disk
11. Format
12. Hard copy
13. Hot type
14. h&j

TEST

______n. Specifications that the typesetter translates into computer-specific codes to perform a change of font, measure, leading or a combination of these functions

______o. Device to connect one computer to another via telephone lines

______p. Small device used to move the cursor on a computer screen

______q. Number of characters in a pica, inch or line; it is different for each typeface and size and varies with extending or condensing

______r. To indicate on layout or copy instructions for typesetting

______s. To calculate how much space a given amount of copy will occupy when set in a specified size and typeface

______t. Abbreviation for "What You See Is What You Get"; a VDT in which the type on the screen resembles the final output

______u. A type of electrostatic printing in which the image is created by modulating a laser on and off according to digital information from a computer

______v. A cathode-ray tube keyboard-operated device for displaying copy, making corrections, combining copy elements and performing other typesetting functions

______w. Electronic generation of text and graphics that allows layout and design of multiple pages of a publication to be done on a VDT

______x. A scanner that reads typed manuscripts and produces a magnetic or perforated tape or electronic signals from which type can be set

______y. A small, flexible plastic disk that stores data magnetically after the typesetting computer has been switched off

15. In-house composition
16. Keyboard
17. Laser
18. Laser printing
19. Mark up
20. Modem
21. Mouse
22. OCR
23. Pagination
24. Specifications
25. Type house
26. Type specimen book
27. VDT
28. WYSIWYG

TEST

______z. Acronym for light amplification by stimulated emission of radiation

______aa. Copy on paper as opposed to the "soft" copy in electronic memory

______bb. Characters, such as from a laser printer or phototypesetter, made up of thousands of lines or dots positioned by a computer

2. List the two kinds of hot type composition and six kinds of cold type composition.

Hot type	**Cold type**
a. ____________________	a. ____________________
b. ____________________	b. ____________________
	c. ____________________
	d. ____________________
	e. ____________________
	f. ____________________

3. Match the composition methods on the right with their correct advantages or disadvantages.

______a. Coupled with laser printers, puts typesetting into the hands of writers and editors

______b. Low cost and adequate quality, but limited to text sizes only in small range of type styles

______c. Used primarily in custom design work

______d. High speed, excellent image quality, wide choice of type styles and sizes, and ability to output both type and graphics

______e. Slow, but popular method of preparing small amounts of distinctive display type; offers the greatest range of typefaces for the least money

______f. Slow and time-consuming; no longer widely used

1. Hand-set
2. Machine set
3. Hand lettering
4. Transfer type
5. Strike-on
6. Photographic typesetting
7. Digitized typesetting
8. Microcomputer

TEST

______g. Excellent image quality, wide choice of type styles, speed, versatility and low cost

______h. Slow; offers limited choices of type styles and sizes but still used for premium jobs

4. Select true statements concerning the typesetting process by placing an "X" in the appropriate blanks.

______a. Copy may be delivered to the typesetter electronically.

______b. Type of paper influences the reproduction quality of type.

______c. The amount of keyboarding required is the only factor affecting cost of typesetting.

______d. Typesetting is done by independent "type houses", printers, quick-copy shops, publishers of newspapers, magazines and books, and in-house.

5. Select true statements concerning copyfitting by placing an "X" in the appropriate blanks.

______a. To determine the depth of typeset copy, calculate leading plus type point size times number of lines.

______b. To determine the total of typewritten characters on an elite typewriter, multiply line length by 10, times the number of lines.

______c. In using the vertical line method, one should begin by drawing a vertical line down the typewritten copy at the end of the shortest full line of type.

______d. To convert typewriter characters to typesetting, one should determine both type size and type characters per pica.

6. Select true statements concerning marking up copy by placing an "X" in the appropriate blanks.

______a. Mark instructions on the copy, not in the margins.

______b. Mark type style and size for text and display copy.

______c. Mark line measures and leading.

______d. After preparing copy, read and correct it with proper proofreading marks.

TEST

(NOTE: If the following activities have not been accomplished prior to the test, ask your instructor when they should be completed.)

7. Calculate copyfitting. (Assignment Sheet #1)
8. Mark up copy. (Assignment Sheet #2)
9. Demonstrate the ability to:
   a. Set text type using a phototypesetting machine. (Job Sheet #1)
   b. Set type using a microcomputer. (Job Sheet #2)

TYPESETTING
UNIT VII

ANSWERS TO TEST

1.

a.	6	h.	5	o.	20	v.	27
b.	2	i.	4	p.	21	w.	23
c.	13	j.	24	q.	1	x.	22
d.	25	k.	14	r.	19	y.	10
e.	15	l.	8	s.	7	z.	17
f.	26	m.	16	t.	28	aa.	12
g.	3	n.	11	u.	18	bb.	9

2.

Hot type (Any order)	**Cold type** (Any order)
a. Hand-set foundry	a. Hand lettering
b. Machine set	b. Transfer type and press-on lettering
	c. Strike-on
	d. Photographic typesetting
	e. Digitized typesetting
	f. Microcomputer

3.

a.	8	e.	4
b.	5	f.	1
c.	3	g.	6
d.	7	h.	2

4. a, b, d

5. a, c, d

6. b, c, d

7 & 8. Evaluated to the satisfaction of the instructor

9. Performance skills evaluated to the satisfaction of the instructor

DESIGN PRINCIPLES
UNIT VIII

UNIT OBJECTIVE

After completion of this unit, the student should be able to apply principles of design in constructing printed communication. Competencies will be demonstrated by completing the assignment sheets and the unit test with a minimum score of 85 percent.

SPECIFIC OBJECTIVES

After completion of this unit, the student should be able to:

1. Match terms related to design principles with their correct definitions.
2. Match terms related to color with their correct definitions.
3. Arrange in order steps in the design process.
4. Select from a list things the designer wants from the printer.
5. List functions of design.
6. List components of printed communication.
7. Distinguish between the three stages of layout.
8. Select true statements concerning principles of design.
9. List basic types of art and their sources.
10. Select true statements concerning working with color.
11. List five kinds of publication design.
12. Make thumbnail and rough layouts. (Assignment Sheet #1)
13. Label magazine ads that utilize principles of design. (Assignment Sheet #2)
14. Identify types of art in printed material. (Assignment Sheet #3)
15. Complete a drawing of the printer's color wheel. (Assignment Sheet #4)
16. Identify six basic color combinations in printed material. (Assignment Sheet #5)

DESIGN PRINCIPLES
UNIT VIII

SUGGESTED ACTIVITIES

A. Obtain additional materials and/or invite resource people to class to supplement/reinforce information provided in this unit of instruction.

(NOTE: This activity should be completed prior to the teaching of this unit.)

B. Make transparencies from the transparency masters included with this unit.

C. Provide students with objective sheet.

D. Discuss unit and specific objectives.

E. Provide students with information and assignment sheets.

F. Discuss information and assignment sheets.

(NOTE: Use the transparencies to enhance the information as needed.)

G. Integrate the following activities throughout the teaching of this unit:

1. Bring to class samples of thumbnail sketches, rough layouts and comprehensives.
2. Plan a visit to a commercial art department or advertising agency to observe design principles being utilized.
3. Invite an art director, graphic designer or art teacher to class to discuss art, color and principles of design.
4. Create some layouts utilizing design principles taught in this unit and discuss with class.
5. Show examples of spot and process color used in printed material.
6. Bring to class samples of miscellaneous publications.
7. Meet individually with students to evaluate their progress through this unit of instruction, and indicate to them possible areas for improvement.

H. Give test.

I. Evaluate test.

J. Reteach if necessary.

SUGGESTED ACTIVITIES

REFERENCES USED IN WRITING THIS UNIT

A. Arnold, Edmund C. *Ink on Paper 2.* New York, NY: Harper & Row, 1972.

B. Arntson, Amy E. *Graphic Design Basics.* New York, NY: Holt, Rinehart and Winston, 1988.

C. Baird, Russell N., Arthur T. Turnbull and Duncan McDonald. *The Graphics of Communication,* 5th ed. New York, NY: Holt, Rinehart and Winston, 1987.

D. Crow, Wendall C. *Communication Graphics.* Englewood Cliffs, NJ: Prentice-Hall, 1986.

E. Hawkinson, Bruce. *Graphic Arts: A Curriculum Manual.* Albuquerque, NM: Vo-Tech Division of the New Mexico State Department of Education, 1975.

F. Nelson, Roy Paul. *Publication Design.* Dubuque, IA: Wm. C. Brown Publishers, 1987.

G. Spence, William, and David Vequist. *Graphic Reproduction.* Peoria, IL: Chas. A. Bennett Co., 1980.

SUGGESTED SUPPLEMENTAL MATERIAL

Periodicals

A. *Communication Arts.* Palo Alto, CA (Bimonthly)

B. *Print.* Washington, DC (Bimonthly)

Audiovisuals

A. *Planning Printing* (5030). 34 color, 35-mm slides, 1986.
Graphic Arts Technical Foundation
4615 Forbes Avenue
Pittsburgh, PA 15213
Telephone: (412)621-6941

B. *The Colors for Success* — VHS videotape.
Pantone, Inc.
55 Knickerbaker Road
Moonachie, NJ 070704
Telephone: (210)935-5500

DESIGN PRINCIPLES
UNIT VIII

INFORMATION SHEET

I. Terms and definitions related to design principles

A. Alley — Space between columns on a page

B. Align — To arrange elements so they line up with other elements

C. Art — All pictorial matter: photographs, paintings, drawings, charts and graphs, etc.

D. Balance — Proper placement of elements by weight

E. Bleed — Any image that extends to the edge of a sheet or page after trimming

F. Clip art — High contrast drawings usually on white, slick paper and made to be cut out and pasted into place for the printer

G. Color swatch — Sample of an ink color

H. Comprehensive (comp) — Layout that looks almost like the final printed piece will look

I. Continuous tone art — Photographs, paintings and other images having a complete range or variation of tones from white to black

J. Copy — Everything that will be printed or reproduced: type, photographs, illustrations, etc.

K. Design — The plan and arrangement of graphic elements

(NOTE: The person creating a design starts from scratch, making most of the decisions as to medium, size, typography, art, and so on. The person making a layout uses what elements are made available.)

L. Element — Each individual portion of the printed message

EXAMPLES: A heading, photograph, illustration, text, rule, border

M. Emphasis — Arrangement of elements that attracts attention to the most important element

N. Four-color process — Technique of printing that uses the four process colors of ink to simulate full color

O. Gutter — Space where two pages meet at the binding

P. High contrast — Few or no tonal gradations between dark and light areas

INFORMATION SHEET

Q. Layout — The preliminary plan or blueprint for any piece to be printed

(NOTE: A layout makes use of what may already be available or what may be dictated by others.)

R. Line art — Any solid image consisting of black lines on white background without gradation of tones

(NOTE: This includes illustrations to which shading films have been added to give the appearance of gray areas or tints.)

S. Logo — A trademark or unique type of lettering spelling out the name of a company or product

T. Margin — Space that frames the content of a page or sheet

U. Optical center — Point slightly above and to the left of the mathematical center

V. PMS — Abbreviation for Pantone Matching System, a widely used method of specifying spot color by means of numbered color samples available in swatchbooks

W. Proportion — The size relationship of one part of the design to the other parts

X. Rough — Simple sketch showing the size and position of the various elements of the design; usually an actual size, somewhat more refined version of the thumbnail

Y. Rule — Line used for graphic effect

Z. Screen tint — Area of image printed with dots so ink coverage is less than 100% and simulates shading or a lighter color

AA. Sequence — Arrangement of elements to promote eye movement in logical order

BB. Thumbnail (miniature) — A small, quickly-drawn sketch that shows a possible way to combine various elements of a proposed printed piece

CC. Unity — The overall sense that all elements are related

DD. White space (negative space) — Space not occupied by type, art or other graphic elements

II. Terms and definitions related to color

A. Primary colors — The three basic colors—red, yellow and blue—from which all other color can be produced, at least in theory

B. Cool colors — Restful colors like blue and green that tend to recede from the viewer

INFORMATION SHEET

C. Warm colors — Stimulating colors like red and orange that tend to project toward the viewer

D. Hue — Quality in color that allows its recognition by name

E. Intensity — The full strength or purity of a color

F. Shade — Black added to a color to make it darker

G. Tint — White added to a color to make it lighter

H. Tone — Range of light values from white to black, bright to dull

III. Steps in the design process

A. Define the problem and audience — Decide what is to be communicated and to whom.

(NOTE: Answer the who, what, where, when, and how questions at this time.)

B. Gather information — Research the problem by reading, discussing, and thinking about it.

C. Find solutions — Think of all the bits of information you have gathered and decide the best way to solve the problem.

D. Evaluate solutions — Decide on the best possible solution; then reexamine the solution possibilities.

(NOTE: Decide if it is a cost-effective solution.)

E. Refine ideas and present solution — Prepare copy and layout.

IV. Things the designer wants from the printer

A. Fast answers to queries

B. Attention to detail; highest possible quality

C. A fair price

D. On time delivery

(NOTE: The designer is concerned with the visual characteristics of the printed piece and the printer has to translate the designer's vision into what is attainable from typesetting, printing and finishing processes and paper or other printing surfaces.)

INFORMATION SHEET

V. Functions of design

A. Attract, then hold attention of desired audience

B. Make message easy to read

C. Create a clear, orderly flow of graphic elements

D. Leave some lasting impression

E. Use appropriate technology to deliver the message efficiently and economically

VI. Components of printed communication

A. Body type (text)

B. Display type (headings)

C. Art

D. Other graphic devices (such as logos, rules, borders, and screen tints)

E. White space

VII. Layout stages

(NOTE: The three stages of layout are classified according to the care in drawing them.)

A. Thumbnail

  1. Small, quick sketch
  2. Used to explore and develop an idea
  3. Shows different ways to lay out printed piece
  4. Also called the miniature

B. Rough

  1. Actual size
  2. Aids in visualizing spacing, balance, proportion and emphasis
  3. Tests whether the idea from the thumbnail stage works on a larger scale
  4. Has specifications for printing job written in margin

INFORMATION SHEET

5. Serves as guideline for making rough layouts
    a. Artwork and photos are drawn to suggest size, shape and tone
    b. Heads may be indicated with zigzag lines or lettered in, but type styles or weights are not approximated
    c. Copy is indicated with carefully drawn parallel lines

C. Comprehensive
    1. Actual size
    2. Looks as much like final printed piece as possible
    3. Shown to the client who may have difficulty visualizing job in the rough layout stage

VIII. Principles of design

(NOTE: These design principles are not listed in order of importance. They are interactive. One principle should support another.)

A. Balance

(NOTE: Balance is achieved through control of size, tone and position of the elements.)

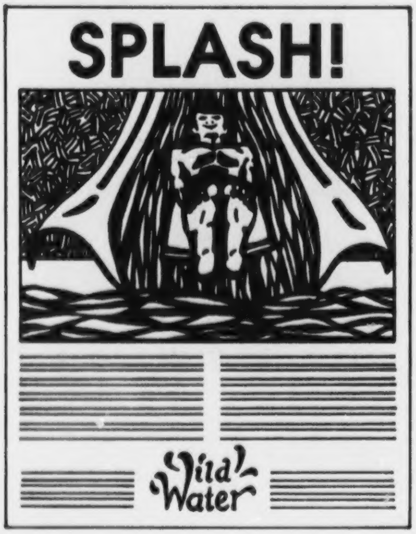
1. Formal balance
    a. Design is symmetrical.
    b. Each element that appears on one side of the design also appears on the other side.
    c. Usually built around a vertical center line

INFORMATION SHEET

d. White space is passive.

(NOTE: Formal balance is generally used where dignity, formality and conservatism are required.)

Formal Balance



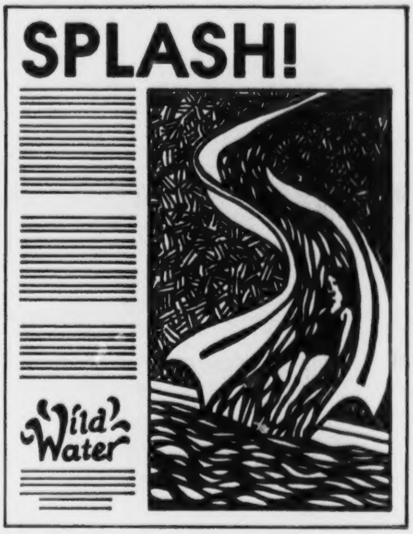
2. Informal balance

   a. Design is asymmetrical.

   b. Elements are distributed in such a manner that their weights balance each other.

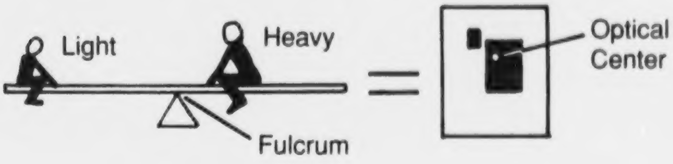
INFORMATION SHEET

Informal Balance



c. The heavier the element in relation to other elements, the nearer it should be placed to the center.

(NOTE: Finding the center of balance among elements is similar to finding the center of balance on a teeter-totter.)



d. White space is active.

(NOTE: Informal balance is generally used for dramatic effect.)

B. Proportion

1. Space within a page should be broken up into pleasing proportions.

   a. Width of page to depth

   b. Width of element to depth

   c. Size of one element to another

   d. Space between two elements and a third

INFORMATION SHEET

e. Amount of light area as opposed to dark area, and color to noncolor

(NOTE: Generally, unequal dimensions make the best design.)

2. Page sizes

   a. Regulation of sheet dimensions will aid in achieving proportion.

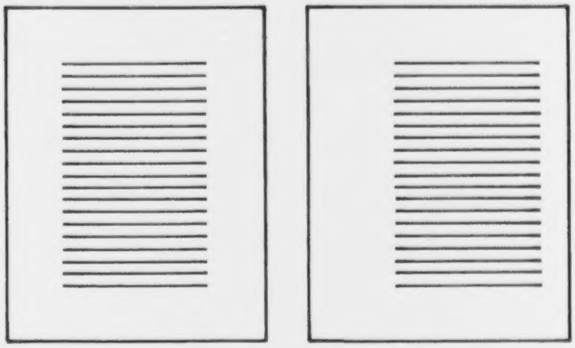
   b. Page sizes are usually in a 2-to-3 or 3-to-5 width-to-height ratio.

3. Margins

   a. Single page margins should make type area appear optically centered.

   b. Facing pages normally have inside (gutter) margins 1/2 to 3/4 size of outside margins.

   c. Equal margins are monotonous, while unequal margins provide interest.



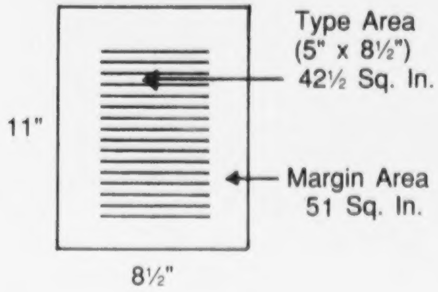
Equal Margins Unequal Margins

4. Type in relation to page size

   a. Ideal proportion is type area slightly more or less than area of all four margins.

INFORMATION SHEET

b. Variations, for purposes of economy or design, are often made.



5. Shapes

   a. Verticals are the most lively.

   b. Squares should be avoided.

C. Sequence

1. Directional pattern (Transparency 1)

   a. Examination of layout usually begins at optical center.

   b. Exploration of layout continues in a clockwise direction, from center, to upper left, and around.

   c. Pointing devices are often used to direct the eye.

   d. Element positioning may suggest eye movement.

   e. Rhythm (a sense of purposeful repetition) may be used.

   f. Natural eye movement is utilized.

      1. Big elements to small elements

      2. Black to white

      3. Color to noncolor

      4. Unusual shapes to regular shapes

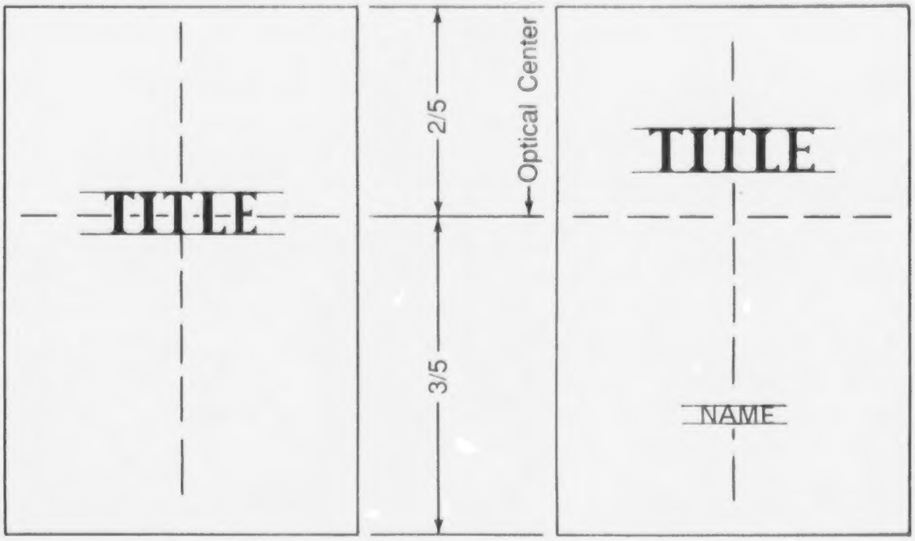
   (NOTE: The order in which the reader perceives the elements on a page should not be left to chance.)

INFORMATION SHEET

2. Horizontal and vertical centers
    a. Horizontal
        1. The center from [illegible] to side
        2. Mathematical center, when measured

           (NOTE: If page is to be bound, the type of binding may require consideration in determining the center of the design.)
    b. Vertical
        1. Optical, or apparent center, from top to bottom
        2. Not a true mathematical center

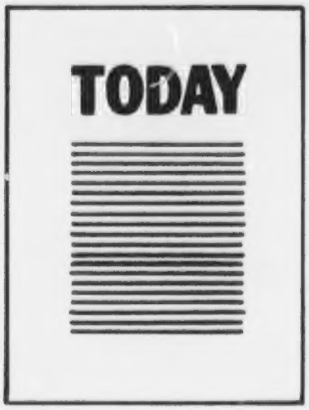
           (NOTE: To find the optical center, divide the page vertically into 5 equal parts; the center of balance is not at the mathematical center, but rather 2/5 of the way down the page.)
        3. Spot the eye hits just when it encounters a printed page
        4. Center of balance between two or more elements should follow the page center of balance



INFORMATION SHEET

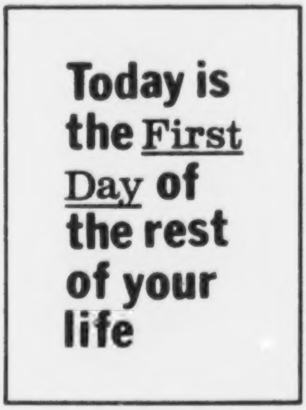
D. Emphasis

1. One element (or a group of elements) should dominate all others.
2. Expressed negatively, the principle is contrast.
3. Methods used to achieve emphasis
    a. Make one element larger or heavier than other elements on layout.



Larger, Heavier Type

    b. Use contrasting typefaces and type variations.

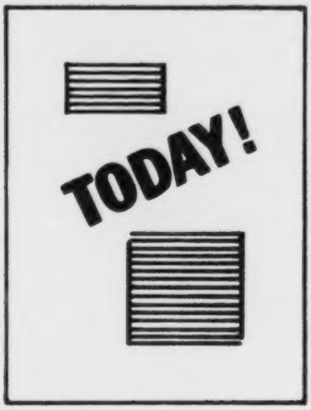

Today is
the First
Day of
the rest
of your
life

Contrasting Type

    c. Single out an element; move it away from clutter of other elements.

INFORMATION SHEET

d. Arrange one element on page to contrast with other elements.



Contrasting Arrangement

e. Give one element a different shape from all others.

f. Use different color ink for one element.

g. Use a screen tint.

  1) For one element

  2) For all but one element

h. Place borders around one element.

i. Use ruled lines.

  1) Around one element

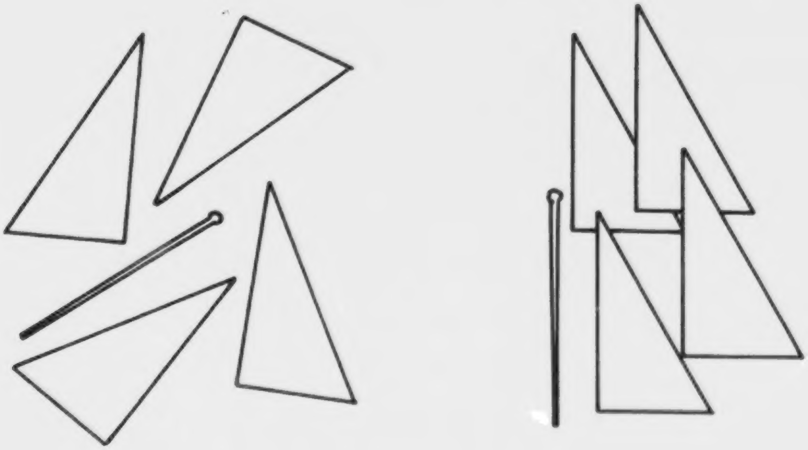
  2) Pointing toward one element

j. Reverse an element (print white letters on a black background).

INFORMATION SHEET

E. Unity

1. A layout has unity when the elements appear to be related and held together, and state a single, unified theme.



(NOTE: The pile of elements on the left have been arranged randomly, but if they are placed as shown on the right, they seem to belong together.)

2. Methods for achieving unity

    a. Run a border around the piece.

    b. Squeeze white space to the outside.

    (NOTE: White space affects the quality and readability of material to be printed. More information can often be communicated with less type and careful use of white space.)

    c. Align two or more elements on a common axis to form a relationship.

    d. Use elements that harmonize with each other.

        1. Type harmony may be achieved when using only one family.

        2. Type styles should be appropriate to shape of page.

        EXAMPLE: Use condensed type on narrow pages, extended type on wide pages.

INFORMATION SHEET

3. The typeface should look as if it were designed to fit the style of the art — it must fit the mood of the piece, the overall theme.

4. Rules and borders should be appropriate for type.

   EXAMPLE: Use heavy rule with sans serifs, and thick and thin rule with serifs.

e. Practice simplicity

1. Avoid too many different type styles.

2. Elaborate, fancy type styles can ruin the effectiveness of a design unless carefully and sparingly used.

3. Art and type should reflect mood of printed piece.

4. More can often make less happen.

IX. **Working with art** (Transparencies 2 and 3)

A. Basic types of art

1. Line art

2. Continuous tone art

   (NOTE: More and more attention is being paid to the role of art in printed communications.)

B. Factors that affect art selection

1. Availability

2. Appropriateness

   a. Photographs are more realistic—they can convey believability and credibility.

   b. Drawings are more unreal—they are more effective with abstractions.

3. Quality

4. Mechanical feasibility

5. Cost

INFORMATION SHEET

C. Sources of art

  1. Photographs

    a. Your own photographs

    b. Professional photographers

    c. Stock photo houses that sell prints for one-time use

    d. Photos from government agencies, trade and professional organizations, businesses, chambers of commerce, etc.

  2. Line art

    a. Your own drawings

    b. Artists and illustrators

    c. Clip art

    d. Public domain sources

    e. Drawings from government agencies, trade and professional organizations, businesses, chambers of commerce, etc.

X. Working with color

A. Two basic categories of color printing

  1. Process color — Method used to reproduce full-color continuous-tone copy, such as color photos and paintings

    a. Uses the four process colors: yellow, magenta (process red), cyan (process blue), and black

    b. Requires separation, the breaking down of the original copy into the four process colors

    c. Requires registration, the accurate positioning of one printing plate over another so that all are in the correct relationship

  2. Spot (flat) color — Color other than process color; usually printed as solid areas for type, line art, or in lines, bars, boxes and screened tints

    a. Used for the color reproduction of any black and white copy

    b. Designated by the number of colors: one-color, two-color (most common), three-color, four-color, etc.

INFORMATION SHEET

c. Requires a separate printing plate and a separate run of the press for each color, so the more colors used, the more expensive the job

d. Pantone Matching System (PMS)

   1. An international printing, publishing and packaging color language providing an accurate method for selection, presentation, specification, communication, matching and control of color

   2. Based on 11 Pantone Colors (9 basic colors, plus black and transparent white) which mixed in varying amounts produce more than 500 different colors

   3. Colors are numbered and arranged in a swatchbook

      (NOTE: The designer looks through the swatchbook, chooses the color, and indicates its number.)

B. The printer's color wheel

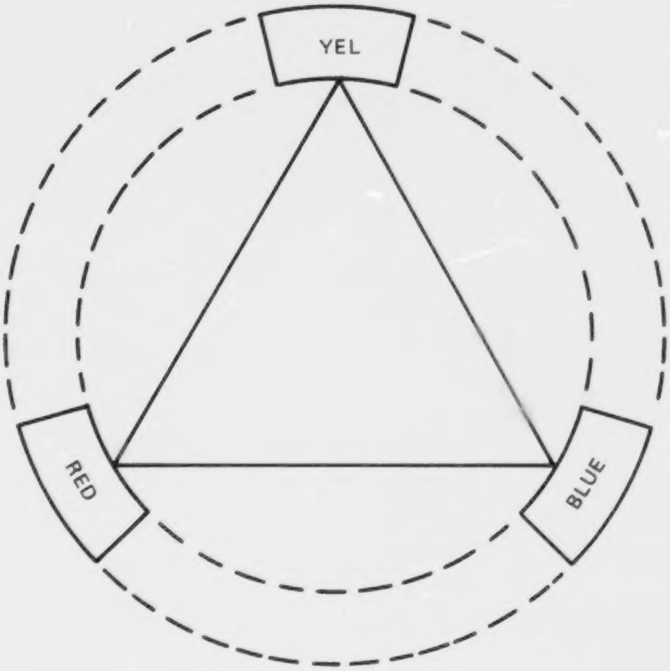
   1. Primary colors

      a. Red, yellow, and blue

      b. Foundation of color wheel

INFORMATION SHEET

c. Place in triangular position as shown



d. Subtractive process primary colors—red (magenta), yellow, and blue (cyan)

1. White light interacts with a colorant (such as ink) which subtracts (absorbs or filters out) some of the colors from the white light and allows the unabsorbed colors to be seen by the eye.

2. The subtractive process is used to produce printing in full color.

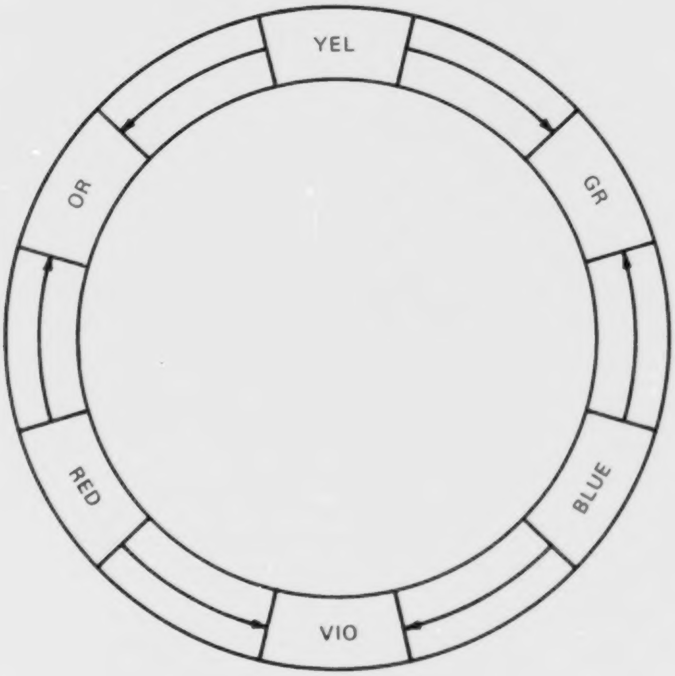
e. Additive process primary colors — red, blue, and green

1. Light rays of certain colors are added to other light rays to produce (add up to) a new color.

2. The additive process is used in process color separation, color photography, color television, and stage lighting.

INFORMATION SHEET

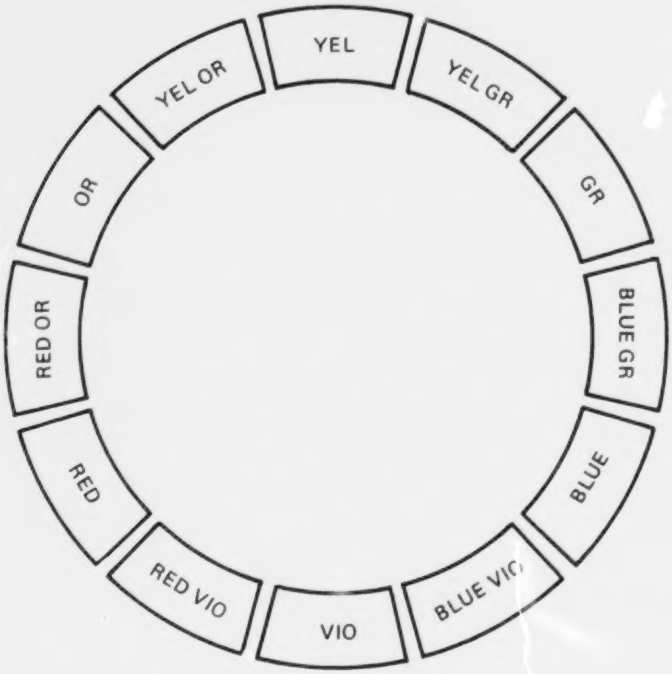
2. Secondary colors
   a. Orange, green, and violet
   b. Formed by a combination of any two of the primary colors.
   c. Orange is made from red and yellow, and should be placed equidistant between them.
   d. Green is made from yellow and blue, and should be placed equidistant between them.
   e. Violet is made from red and blue, and should be placed equidistant between them.



3. Intermediate colors
   a. Colors are red-orange, yellow-orange, yellow-green, blue-green, blue-violet, and red-violet.
   b. Formed by combining primary and secondary colors

INFORMATION SHEET

EXAMPLE: Red-orange is made from red and orange, and should be placed between them on the color wheel.



4. Tertiary colors

   a. Formed by a combination of any two of the secondary colors

   b. The tertiary colors are russet (orange and violet), citrine (orange and green), and olive (green and violet).

C. Color combinations

1. Monochromatic harmony

   a. Utilizes two or more tones of one color

   b. Using colored stock with a darker shade ink of the same color will result in harmonious printing.

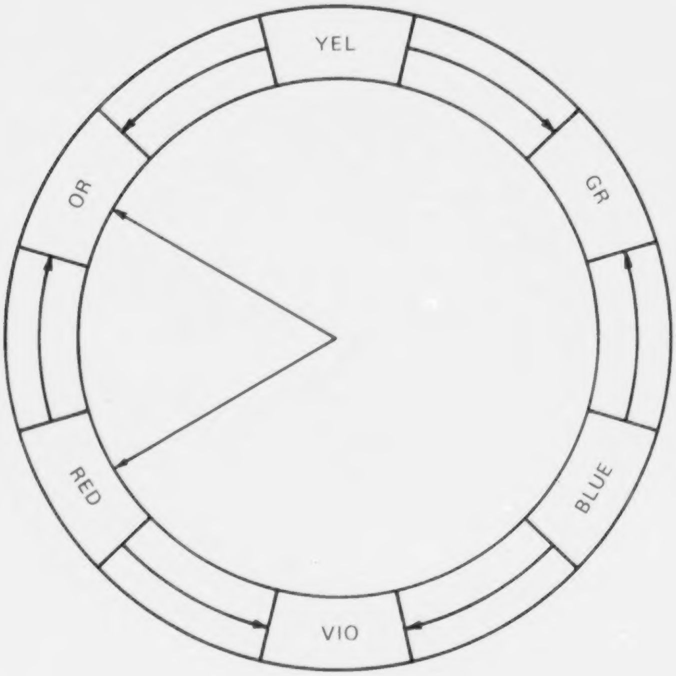
   c. Using white stock, monochromatic harmony may be achieved by using dark colored type with tint blocks, rules, or borders.

INFORMATION SHEET

2. Analogous harmony

   a. Combining adjacent (next to each other) colors of the printer's color wheel will create harmony.

   b. More than two adjacent secondary colors should not be used, as they will not harmonize.



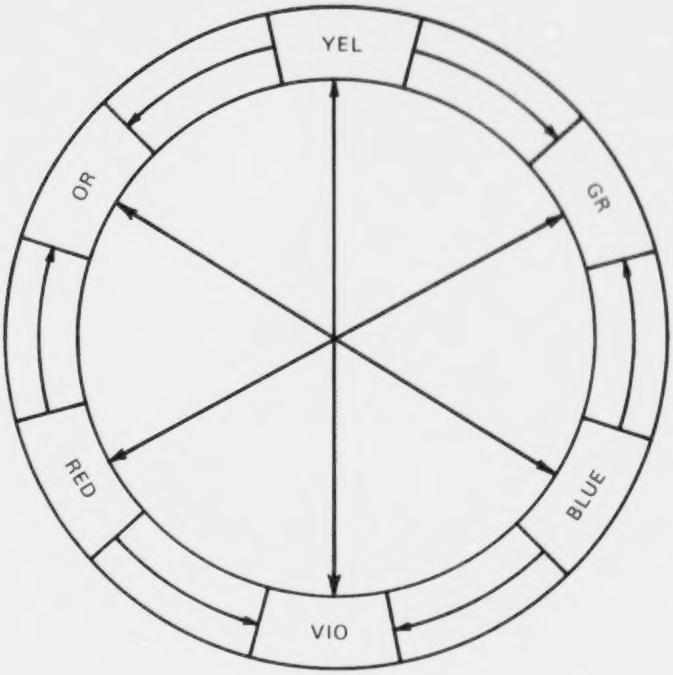
3. Complementary harmony

   a. Utilizes two colors directly opposite from each other on the color wheel

   b. Forms contrasts that attract attention

INFORMATION SHEET

c. Should not be used together in pure form, rather use one light and one darker color

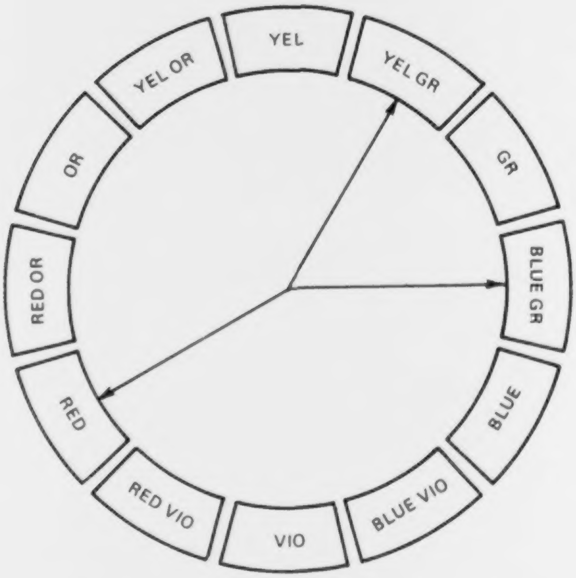


4. Split complements

a. The colors on each side of the complement may be used instead of the complementary color.

INFORMATION SHEET

b. Use of split complements results in three-color printing.


YEL
YEL GR
GR
BLUE GR
BLUE
BLUE VIO
VIO
RED VIO
RED
RED OR
OR
YEL OR

5. Triad method

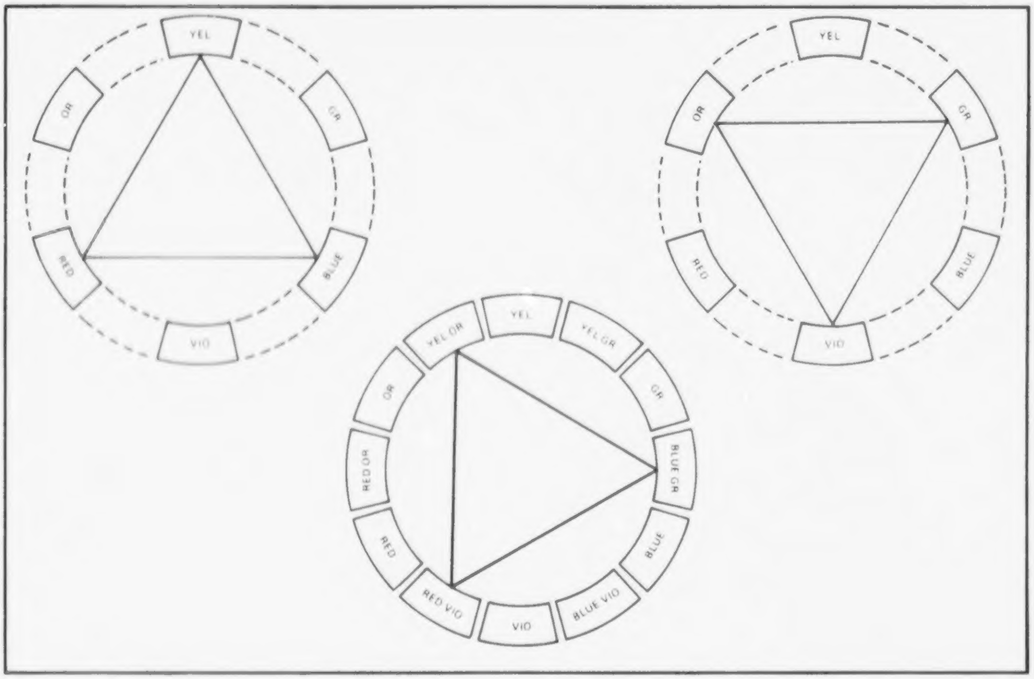
   a. The triangle that is formed on the color wheel by the primary colors of red, yellow, and blue may be rotated to any other combination of three colors to create triad harmony.

   b. When using triad combinations, they should not all be of the same strength or intensity.

   (NOTE: One should be light, one dark, and the other halfway in between.)

INFORMATION SHEET

c. Equal amounts of the colors should not be used, but a large amount of one, and smaller amounts of the other two will give harmonious results.


YEL
GR
BLUE
VIO
RED
OR
YEL
GR
BLUE
VIO
RED
OR
YEL
YEL GR
GR
BLUE GR
BLUE
BLUE VIO
VIO
RED VIO
RED
RED OR
OR
YEL OR

6. Black, white, and gray

   a. May be used with any color or combination of colors and result in perfect harmony

   b. Colors that do not harmonize may be brought into harmony by separating them with bands or edgings of black, white, or gray.

D. Selecting color

1. Preferences

   a. Men often prefer blue.

   b. Red is usually the first choice for women; among younger women purple is a favorite.

   c. Teens like pure, brilliant colors and fluorescents.

   d. Older persons may prefer soft tones.

INFORMATION SHEET

2. The meaning of color
    a. Cool colors, such as blue and green, depict calmness and serenity.
    b. Warm colors, such as red, yellow, and their variations, stimulate and show action.
3. Special inks and protective coatings
    a. Special colors are available; flourescent ink in many bright colors, and metallic ink in gold, bronze and silver.
    b. Varnishing may be used to enhance and protect photographs during printing.

E. Pointers on using color

1. Choose colors as dictated by message content, purpose and audience.
2. One color should dominate.
3. When using more than one color, reserve the darkest for the basic message, using the additional color(s) for emphasis or setting a mood.
4. When colored inks are used on colored paper, best results will be obtained with a shade of the same color or a complementary color.
5. Type in color, or on colored stock, is dangerous; be concerned with readability.
6. Type printed in reverse should be within a fairly dark area.
7. Use four-color process sparingly; be sure the quality of the art warrants the cost.
8. Exercise restraint in the use of additional color; generally a single spot of color is sufficient.
9. Develop a library of color use by collecting good examples of pieces that use color effectively.

XI. Kinds of publication design

A. Books

B. Magazines

C. Newspapers

D. Newsletters

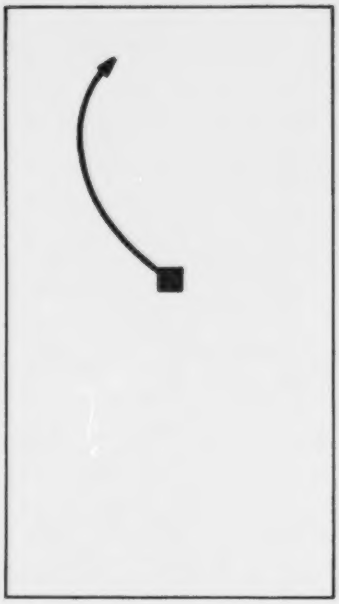
INFORMATION SHEET

E. Miscellaneous publications

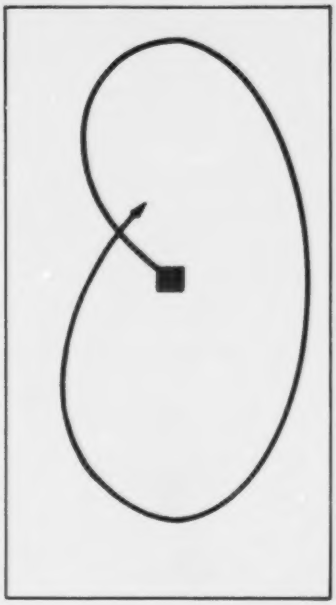
EXAMPLES: Leaflets, folders, booklets, brochures, catalogs, directories, training manuals, annual reports, calendars, yearbooks, and other pieces produced by advertising agencies, public relations firms or departments, independent art studios or freelancers, and commercial and in-house printers.

(NOTE: Regardless of the type of printed piece, the principles of design are unchanging. However, the designer has a freer hand in designing miscellaneous publications.)

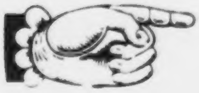
Methods Used to Achieve Direction



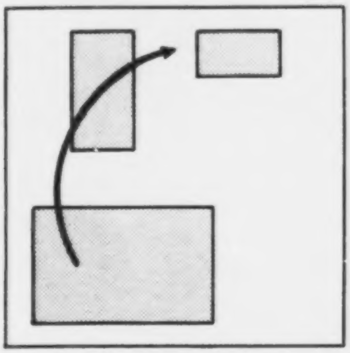
A. Examination of layout begins at optical center.



B. Exploration continues in clockwise direction — from center to upper left, and around



C. Pointing devices may be used to direct the eyes.



D. Element positioning may suggest eye movement.

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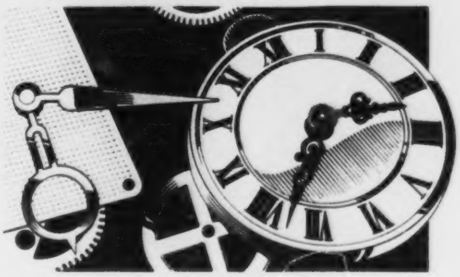
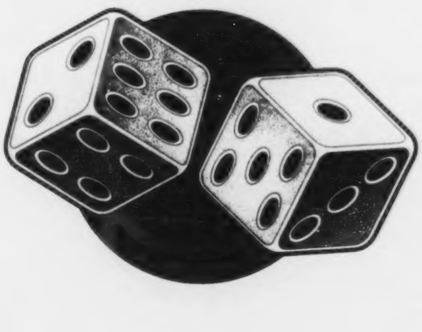
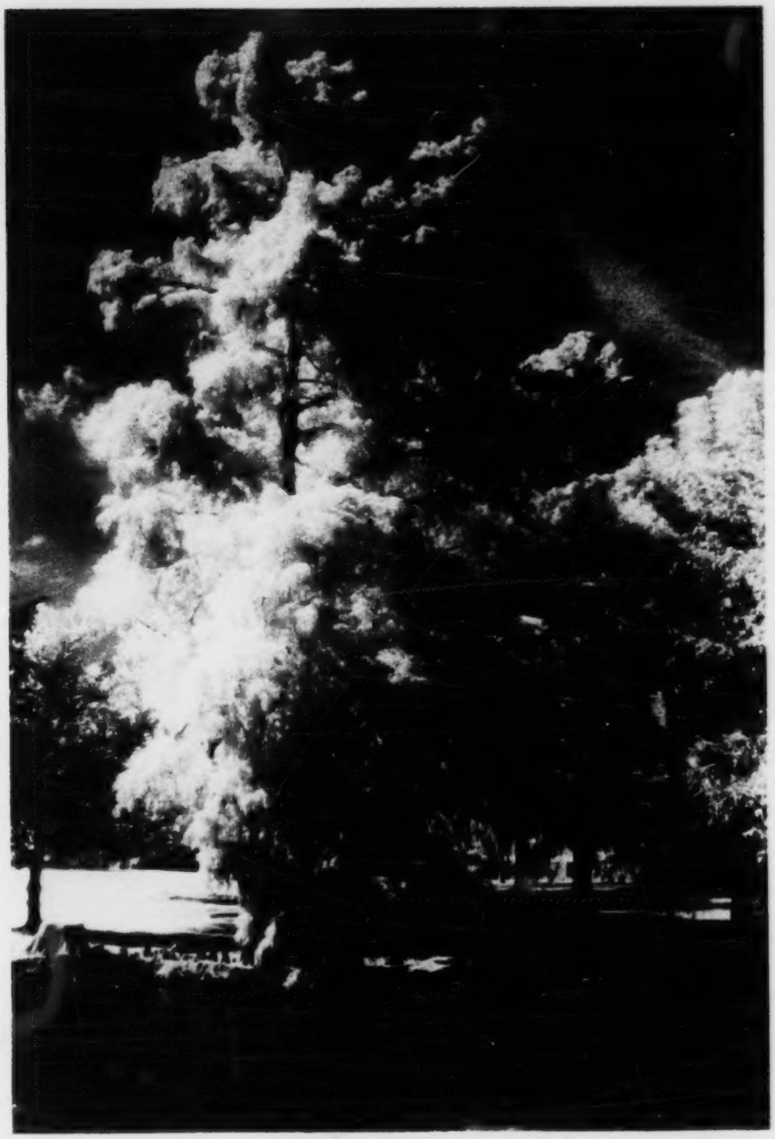
Line Art





Continuous Tone Art



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DESIGN PRINCIPLES
UNIT VIII

ASSIGNMENT SHEET #1 — MAKE THUMBNAIL AND ROUGH LAYOUTS

Name ______________________________ Score __________________

Directions: Pick out a full-page ad from a consumer magazine or a quarter-page ad from a newspaper having art, a headline, body copy and logo.

1. Do a rough layout in reverse. Using a pencil and tracing paper, trace the ad, taking care to suggest the size, shape and tone of the art. Letter in the headline. Indicate body copy by ruling parallel lines. When you have finished, compare the original with your tracing.
2. Rearrange the elements in the ad you selected, not necessarily to improve the ad, but to see what other arrangements are possible. Do at least three thumbnails on 8½" x 11" white paper to explore alternative combinations. Be sure your thumbnails are kept in correct proportion.
3. Choose the thumbnail you like best, and do a rough layout of it.
4. Turn in the original ad, your tracing of it, your thumbnails and new rough.

DESIGN PRINCIPLES
UNIT VIII

ASSIGNMENT SHEET #2 — LABEL MAGAZINE ADS THAT UTILIZE PRINCIPLES OF DESIGN

Name ______________________________ Score ________________

Directions: Go through magazines and locate ads that utilize the principles of design studied in this unit. Cut these ads out, paste them on separate sheets of paper and label each ad as to what design principle is shown. Find at least one ad utilizing each of the following design principles.

1. Balance
2. Proportion
3. Sequence
4. Emphasis
5. Unity

DESIGN PRINCIPLES
UNIT VIII

ASSIGNMENT SHEET #3 — IDENTIFY TYPES OF ART IN PRINTED MATERIAL

Name ______________________________ Score ________________

Directions: From magazines, newspapers and/or newsletters, locate examples of the two basic types of art listed below. Bring to class three examples of each and be prepared to tell why you chose them.

1. Line art

2. Continuous tone art

DESIGN PRINCIPLES
UNIT VIII

ASSIGNMENT SHEET #4 — COMPLETE A DRAWING OF THE PRINTER'S COLOR WHEEL

Name ____________________________________ Score ____________________

Directions: Complete the printer's color wheel below by writing the color names in the appropriate positions.

A. Red

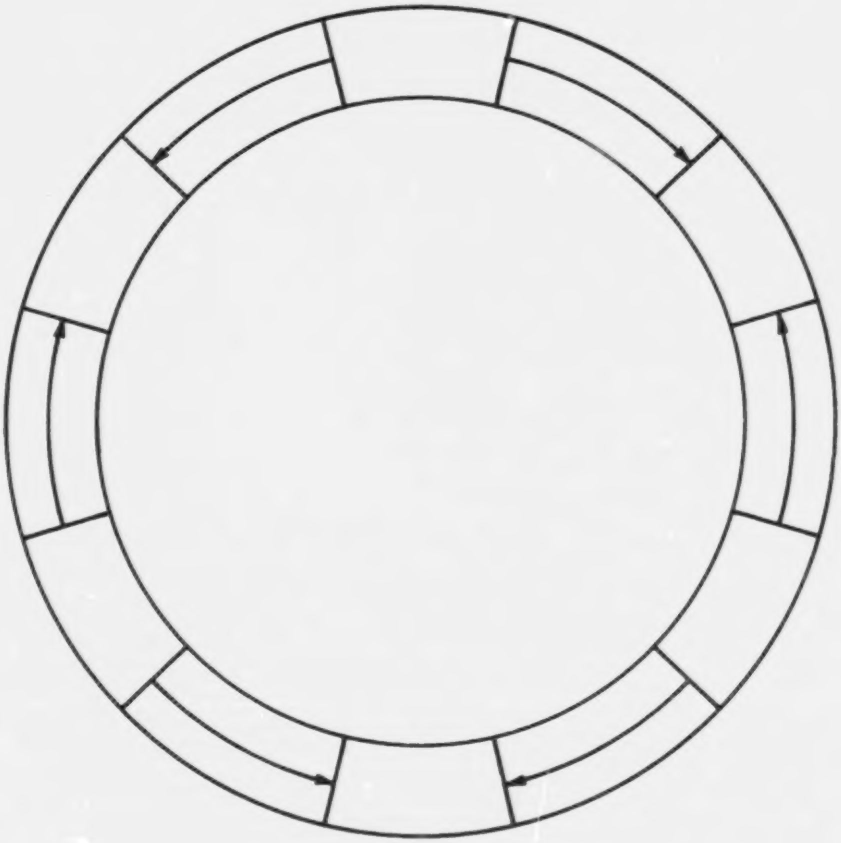
B. Green

C. Violet

D. Orange

E. Yellow

F. Blue



DESIGN PRINCIPLES
UNIT VIII

ASSIGNMENT SHEET #5 — IDENTIFY SIX BASIC COLOR COMBINATIONS IN PRINTED MATERIAL

Name ______________________________ Score ____________________

Directions: From magazines, newspapers and miscellaneous publications, find and identify examples of the six basic color combinations listed below.

1. Monochromatic
2. Analogous
3. Complementary
4. Split complements
5. Triad
6. Black, white, and gray

DESIGN PRINCIPLES
UNIT VIII

ANSWERS TO ASSIGNMENT SHEETS

Assignment Sheet #1

The following elements should be present in the advertisement the student selected: headline, art, body copy, and logo.

At least three proportional thumbnails and one rough layout should be submitted following the principles of design outlined in the unit.

Assignment Sheet #2

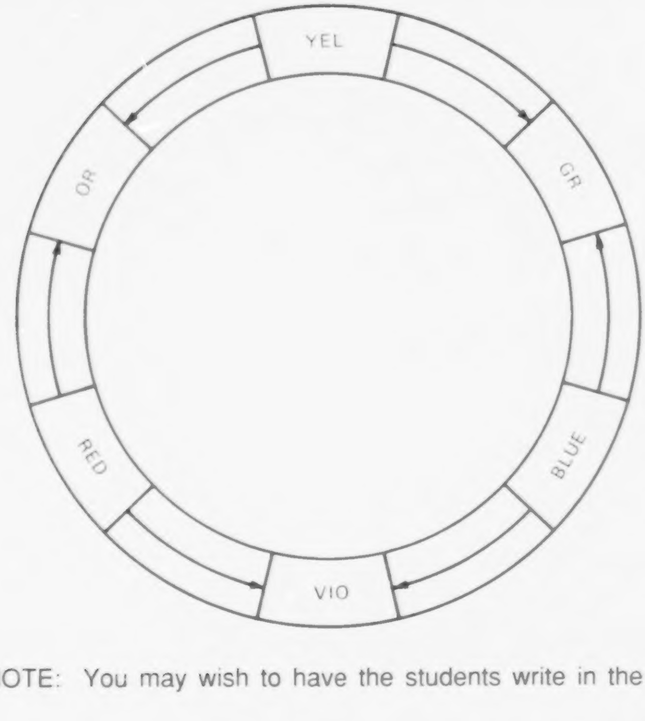
The student should locate and label at least one advertisement demonstrating each of the following: balance, proportion, sequence, empnasis, and unity.

Assignment Sheet #3

The student should bring at least three examples of line art and three examples of continuous tone art to class for discussion.

Assignment Sheet #4

The completed color wheel should look like the following:



(NOTE: You may wish to have the students write in the tertiary colors as well.)

ANSWERS TO ASSIGNMENT SHEETS

Assignment Sheet #5

The student should locate and identify at least one example of each of the listed basic color combinations.

DESIGN PRINCIPLES

UNIT VIII
TEST

Name ______________________________ Score __________________

1. Match the terms on the right with their correct definitions.

______a. Each individual portion of the printed message

______b. Everything that will be printed or reproduced: type, photographs, illustrations, etc.

______c. Space not occupied by type, art or other graphic elements

______d. A trademark or unique type of lettering spelling out the name of a company or product

______e. Line used for graphic effect

______f. Area of image printed with dots so ink coverage is less than 100% and simulates shading or a lighter color

______g. The plan and arrangement of graphic elements

______h. The preliminary plan or blueprint for any piece to be printed

______i. To arrange elements so they line up with other elements

______j. Layout that looks almost like the final printed piece will look

______k. A small, quickly-drawn sketch that shows a possible way to combine various elements of a proposed printed piece

______l. Simple sketch showing the size and position of the various elements of the design; usually an actual size, somewhat more refined version of the thumbnail

1. Alley
2. Align
3. Art
4. Balance
5. Bleed
6. Clip art
7. Color swatch
8. Comprehensive
9. Continuous tone art
10. Copy
11. Design
12. Element
13. Emphasis
14. Four-color process
15. Gutter
16. High contrast
17. Layout
18. Line art
19. Logo
20. Margin
21. Optical center
22. PMS

TEST

______m. The size relationship of one part of the design to the other parts

______n. Arrangement of elements that attracts attention to the most important element

______o. Proper placement of elements by weight

______p. The overall sense that all elements are related

______q. Arrangement of elements to promote eye movement in logical order

______r. Space where two pages meet at the binding

______s. Space between columns on a page

______t. Any image that extends to the edge of a sheet or page after trimming

______u. Space that frames the content of a page or sheet

______v. Point slightly above and to the left of the mathematical center

______w. All pictorial matter: photographs, paintings, drawings, charts and graphs, etc.

______x. Photographs, paintings and other images having a complete range or variation of tones from white to black

______y. Any solid image consisting of black lines on white background without gradation of tones

______z. High contrast drawings usually on white, slick paper and made to be cut out and pasted into place for the printer

______aa. Few or no tonal gradations between dark and light areas

______bb. Sample of an ink color

23. Proportion
24. Rough
25. Rule
26. Screen tint
27. Sequence
28. Thumbnail
29. Unity
30. White space

TEST

_____cc. Technique of printing that uses the four process colors of ink to simulate full color

_____dd. Abbreviation for Pantone Matching System, a widely used method of specifying spot color by means of numbered color samples available in swatchbooks

2. Match the terms on the right with their correct definitions.

_____a. Restful colors like blue and green that tend to recede from the viewer

_____b. The three basic colors—red, yellow and blue—from which all other color can be produced, at least in theory

_____c. Quality in color that allows its recognition by name

_____d. The full strength or purity of a color

_____e. Black added to a color to make it darker

_____f. White added to a color to make it lighter

_____g. Stimulating colors like red and orange that tend to project toward the viewer

_____h. Range of light values from white to black, bright to dull

1. Intensity
2. Primary colors
3. Tint
4. Cool colors
5. Shade
6. Tone
7. Warm colors
8. Hue

3. Arrange in order steps in the design process by writing a "1" for the first step, a "2" for the second step, and so on.

_____a. Find solutions — Think of all the bits of information you have gathered and decide the best way to solve the problem.

_____b. Define the problem and audience — Decide what is to be communicated and to whom.

_____c. Refine ideas and present solution — Prepare copy and layout.

_____d. Gather information — Research the problem by reading, discussing, and thinking about it.

TEST

_____e. Evaluate solutions — Decide on the best possible solution, then reexamine the solution possibilities.

4. Select from the following list things a designer wants from a printer by placing an "X" in the appropriate blanks.

   _____a. A cheap price, even if some details are neglected

   _____b. Fast answers to queries

   _____c. On time delivery

   _____d. Attention to detail; highest possible quality

5. List three functions of design.

   a. ______________________________

   b. ______________________________

   c. ______________________________

6. List the five components of printed communication.

   a. ______________________________

   b. ______________________________

   c. ______________________________

   d. ______________________________

   e. ______________________________

7. Distinguish between the three stages of layout by writing a "T" for thumbnail, an "R" for rough, or a "C" for comprehensive.

   _____a. Actual size

   _____b. Shows different ways to lay out printed piece

   _____c. Tests whether the idea from the thumbnail stage works on a larger scale

   _____d. Small, quick sketch

   _____e. Serves as guideline for making rough layouts

   _____f. Shown to the client who may have difficulty visualizing job in the rough layout stage

   _____g. Has specifications for printing job written in margin

TEST

_____h. Looks as much like final printed piece as possible

_____i. Also called the miniature

_____j. Aids in visualizing spacing, balance, proportion and emphasis

_____k. Used to explore and develop an idea

8. Select true statements concerning principles of design by placing an "X" in the blank for each correct statement.

_____a. When using formal balance, each element that appears on one side of the design also appears on the other side.

_____b. White space is passive when using informal balance.

_____c. With informal balance, the design is asymmetrical.

_____d. Single page margins should make type area appear optically centered.

_____e. Space within a page should be broken up into pleasing proportions of light to dark and color to noncolor.

_____f. Equal margins are interesting.

_____g. The vertical center of a page is the mathematical center.

_____h. Directional pattern utilizes natural eye movement from big elements to small elements.

_____i. Emphasis is achieved by use of contrasting typefaces.

_____j. To achieve emphasis, all elements of a design should have the same shape.

_____k. To achieve unity, the design should be as elaborate as possible.

_____l. A layout has unity when the elements appear to be related and held together by a single theme.

9. List the two basic types of art and three sources for each type.

Type	**Sources**
a. ____________________	1) ____________________
	2) ____________________
	3) ____________________

TEST

Type	Sources
b. ______________________	1) ______________________
	2) ______________________
	3) ______________________

10. Select true statements concerning working with color by placing an "X" in the appropriate blanks.

_____a. Two basic categories of color printing are process color and spot color.

_____b. The Pantone Matching System is an international printing, publishing and packaging color language.

_____c. Secondary colors are orange, brown and green.

_____d. By combining primary and secondary colors, intermediate colors can be formed.

_____e. A combination of any two primary colors results in a third or tertiary color.

_____f. Two or more tones of one color results in monochromatic harmony.

_____g. Use of two colors directly opposite from each other on the color wheel results in analogous harmony.

_____h. When using triad combinations, they should not all be of the same strength or intensity.

_____i. Black, white and gray may be used with any color or combination of colors and result in perfect harmony.

_____j. Warm colors are red and green.

_____k. When using more than one color, reserve the darkest for the basic message.

_____l. Type in color, or on colored stock, is strongly recommended.

11. List five kinds of publication design.

a. ______________________

b. ______________________

c. ______________________

TEST

d. ____________________________

e. ____________________________

(NOTE: If the following activities have not been accomplished prior to the test, ask your instructor when they should be completed.)

12. Make thumbnail and rough layouts. (Assignment Sheet #1)
13. Label magazine ads that utilize principles of design. (Assignment Sheet #2)
14. Identify types of art in printed material. (Assignment Sheet #3)
15. Complete a drawing of the printer's color wheel. (Assignment Sheet #4)
16. Identify six basic color combinations in printed material. (Assignment Sheet #5)

DESIGN PRINCIPLES
UNIT VIII

ANSWERS TO TEST

1.
a. 12
b. 10
c. 30
d. 19
e. 25
f. 26
g. 11
h. 17
i. 2
j. 8
k. 28
l. 24
m. 23
n. 13
o. 4
p. 29
q. 27
r. 15
s. 1
t. 5
u. 20
v. 21
w. 3
x. 9
y. 18
z. 6
aa. 16
bb. 7
cc. 14
dd. 22

2.
a. 4
b. 2
c. 8
d. 1
e. 5
f. 3
g. 7
h. 6

3.
a. 3
b. 1
c. 5
d. 2
e. 4

4. b, c, d

5. Any three of the following:

a. Attract, then hold attention of desired audience
b. Make message easy to read
c. Create a clear, orderly flow of graphic elements
d. Leave some lasting impression
e. Use appropriate technology to deliver the message efficiently and economically

6.
a. Body type
b. Display type
c. Art
d. Other graphic devices
e. White space

7.
a. R or C
b. T
c. R
d. T
e. R
f. C
g. R
h. C
i. T
j. R
k. T

ANSWERS TO TEST

8. a, c, d, e, h, i, l

9. a. Line art
   Any three of the following:
   1) Your own drawings
   2) Artists and illustrators
   3) Clip art
   4) Public domain sources
   5) Drawings from government agencies, trade and professional organizations, businesses, chambers of commerce, etc.

   b. Continuous tone art
   Any three of the following:
   1) Your own photographs
   2) Professional photographers
   3) Stock photo houses that sell prints for one-time use
   4) Photos from government agencies, trade and professional organizations, businesses, chambers of commerce, etc.

10. a, b, d, f, h, i, k

11. The following may be in any order:
    a. Books
    b. Magazines
    c. Newspapers
    d. Newsletters
    e. Miscellaneous publications

12-16. Evaluated to the satisfaction of the instructor

PASTE-UP PRINCIPLES AND PROCEDURES
UNIT IX

UNIT OBJECTIVE

After completion of this unit, the student should be able to prepare paste-ups, and crop and scale art. Competencies will be demonstrated by completing the job sheets and the unit tests with a minimum score of 85 percent.

SPECIFIC OBJECTIVES

After completion of this unit, the student should be able to:

1. Match terms associated with paste-up principles and procedures with their correct definitions.
2. Identify paste-up tools and materials.
3. Select true statements concerning basic paste-up steps.
4. Match registration methods with their correct descriptions.
5. Select true statements concerning use of clear acetate and ruby film.
6. Complete statements associated with processing art for production.
7. Match kinds of imposition with their correct descriptions.
8. Select true statements concerning postal regulations.
9. Demonstrate the ability to:
    a. Prepare a paste-up. (Job Sheet #1)
    b. Prepare overlays using clear acetate and ruby film. (Job Sheet #2)
    c. Crop a photograph. (Job Sheet #3)
    d. Scale copy. (Job Sheet #4)

PASTE-UP PRINCIPLES AND PROCEDURES
UNIT IX

SUGGESTED ACTIVITIES

A. Obtain additional materials and/or invite resource people to class to supplement/reinforce information provided in this unit of instruction.

(NOTE: This activity should be completed prior to the teaching of this unit.)

B. Provide students with objective sheet.

C. Discuss unit and specific objectives.

D. Provide students with information sheet.

E. Discuss information sheet.

F. Provide students with job sheets.

G. Discuss and demonstrate the procedures outlined in the job sheets.

H. Integrate the following activities throughout the teaching of this unit:

   1. Show samples of paste-ups for different kinds of jobs.
   2. Make a bulletin board display of tint screens and special effect screens.
   3. Make a bulletin board display of postal regulations obtained from your Postmaster.
   4. Meet individually with students to evaluate their progress through this unit of instruction, and indicate to them possible areas for improvement.

I. Give test.

J. Evaluate test.

K. Reteach if necessary.

REFERENCES USED IN WRITING THIS UNIT

A. Baird, Russell N., Arthur T. Turnbull and Duncan McDonald. *The Graphics of Communication*, 5th ed. New York, NY: Holt, Rinehart and Winston, 1987.

B. Craig, James. *Production for the Graphic Designer.* New York, NY: Watson-Guptill Publications, 1974.

C. Crow, Wendall C. *Communication Graphics.* Englewood Cliffs, NJ: Prentice-Hall, 1986.

SUGGESTED ACTIVITIES

D. *A Guide to Business Mail Preparation.* Washington, DC: United States Postal Service, 1985.

E. Silver, Gerald A. *Modern Graphic Arts Paste-Up*, 2nd ed. New York, NY: Van Nostrand Reinhold Co., 1983.

F. Spence, William, and David Vequist. *Graphic Reproduction.* Peoria, IL: Chas. A. Bennett Co., 1980.

SUGGESTED SUPPLEMENTAL MATERIAL

Audiovisuals

A. *Introduction to the Process Camera* (5070). 52 color, 35-mm slides, 1972.

B. *Line Copy for the Process Camera* (5071). 36 color, 35-mm slides, 1972.

C. *Paste-up Techniques* (5084). 66 color, 35-mm slides, 1981.

A-C are available from:

Graphic Arts Technical Foundation
4615 Forbes Avenue
Pittsburgh, PA 15213
Telephone: (412) 621-6941

PASTE-UP PRINCIPLES AND PROCEDURES
UNIT IX

INFORMATION SHEET

I. **Terms and definitions**

A. Acetate — Thin, flexible sheet of transparent plastic used to make overlays

B. Adhesive — Wax, rubber cement, glue stick, spray mount or double-faced tape used to hold copy to base sheet

C. Base sheet — Surface on which copy is pasted up; usually smooth white hot press illustration board or preprinted grid sheet with all critical guidelines in place

D. Bleed — Printed image filling one or more margins and running off the edge of a sheet or page

E. Camera-ready copy — Copy which is ready to be photographed for platemaking according to the technical requirements of either quick or commercial printing

(NOTE: The camera part of camera-ready copy refers to process cameras.)

F. Continuous tone copy — Any image that has a complete range of tones from black to white: photographs, paintings, drawings, etc.

G. Copy — Everything that will be printed: type, art, other graphic elements

H. Cover sheet — Second overlay or flap of heavy kraft or cover paper sometimes attached to paste-up for added protection and better appearance

I. Crop — To mark a photograph or drawing to indicate which portions are to be reproduced

J. Dropout — A term indicating that certain areas of a photograph or screen tint are to be left blank or unprinted

K. Dummy (mockup) — A detailed diagram instructing paste-up person how to arrange elements of a printing job

L. Flop — To reproduce a photograph or drawing so that it faces the opposite way

M. Folding dummy — A set of folded sheets showing the placement of pages and elements within a printed piece; it may be either rough or comprehensive, depending on the client's needs

N. Ganging — To make several halftones at the same enlargement or reduction at one time; also, to group together two or more jobs on a single press run

INFORMATION SHEET

O. Gripper edge (leading edge) — Edge of a sheet of paper that enters a sheet-fed press first

(NOTE: Allowance for gripper bite must be made by the designer, paste-up person and stripper.)

P. Imposition — Arrangement of pages so that when printed, the press sheet can be folded and bound with the pages in proper sequence

Q. Keyline art — Art which is prepared for multiple color printing in which the colors overlap slightly

R. Line copy — Any image that is solid black with no gradation of tones: clip art, type, rules, dots, etc.

S. Overlay — A sheet of acetate placed over a paste-up to hold copy that will appear in another color; also a tissue or tracing paper flap to protect paste-up from dirt and damage and indicate instructions to the printer

T. Paste-up (mechanical) — Camera-ready assembly of type, art and other graphic elements pasted on base sheet in exact position and containing instructions, either in the margins or on an overlay, for the printer; also, as verb, to adhere copy to grids or base sheets

U. PMT — Abbreviation for photomechanical transfer, a Kodak trade name for a process used to make same size, enlarged or reduced positive paper, reverse or acetate prints of line and continuous tone copy

V. Process camera — Large, sturdily built graphic arts camera used to photograph paste-ups and other copy, while at the same time reducing or enlarging the images as needed

W. Proportional scale — A circular slide rule used to calculate percent that an original image must be reduced or enlarged to yield a specific reproduction size

X. Reverse — To reproduce the whites in an original as black and the blacks as white

Y. Ruby film — A two-ply, peel-apart film masking material; usually ruby-red film adhered to a clear film base

(NOTE: Rubylith is the Ulano trade name for one widely-used ruby film.)

Z. Scaling — Process of calculating the percentage by which images should be enlarged or reduced

AA. Signature — A printed sheet containing a number of pages, usually 4, 8, 16, 32 or 64, that is folded and bound to become part of a publication

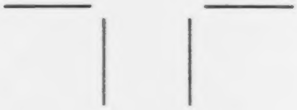
BB. Surprint — A dark image printed over a lighter image area

INFORMATION SHEET

CC. Trailing edge — Edge of the press sheet that is printed last

DD. Trim marks — Right angle marks on paste-up to show the four corners of the printed piece after it has been printed and trimmed

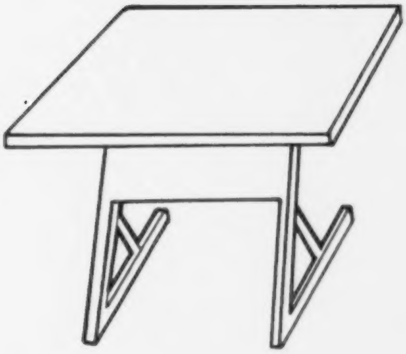
(NOTE: Trim marks are also called *tick marks* or *corner marks.*)



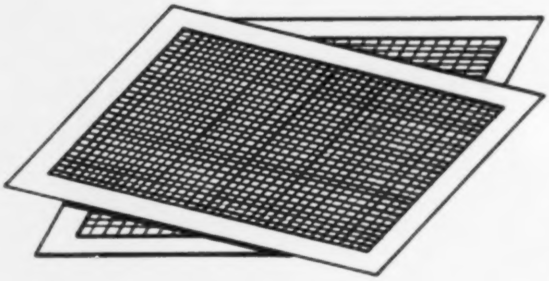
EE. Window — Block of masking material on a paste-up that shows position of a photograph or other visual element; a transparent opening in line negatives into which a halftone is stripped

II. Paste-up tools and materials

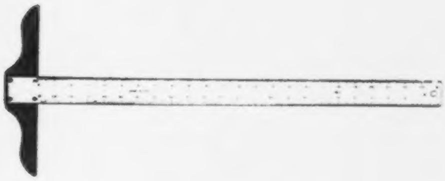
A. Drawing table (or light table)



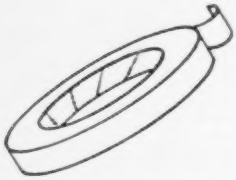
B. Grid or base sheets



C. T-square

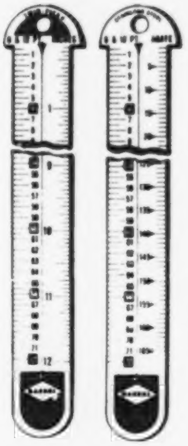


D. Masking or drawing tape

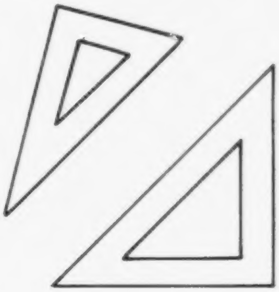


INFORMATION SHEET

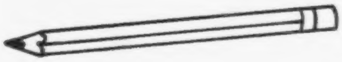
E. Line gauge (or metal ruler)



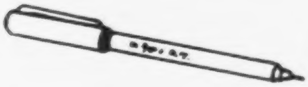
F. Triangles



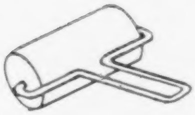
G. Non-reproducing light blue pencil



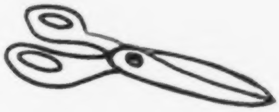
H. Fine-tipped black pen



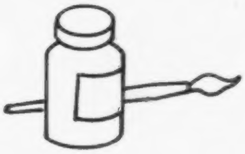
I. Burnishing roller



J. Scissors



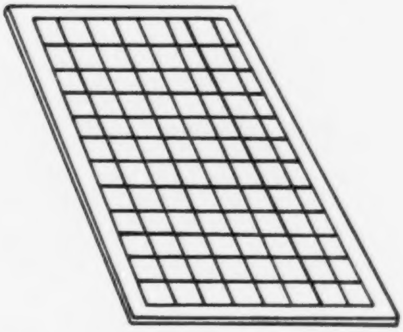
K. Opaque white paint or correction fluid



L. Erasers

INFORMATION SHEET

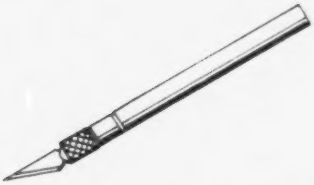
M. Trimboard



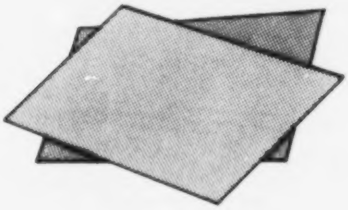
N. Proportional scale

PROPORTIONAL SCALE

O. X-Acto knife

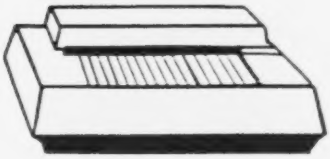


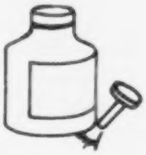
P. Mechanical films



Q. Waxer, rubber cement or other adhesives

(NOTE: Waxing is the cleanest, fastest and most convenient method and allows elements to be moved easily from one position to another, while rubber cement, the old standard, provides better bonding with the main disadvantage being general messiness.)





INFORMATION SHEET

III. Basic paste-up steps

A. Establish a plan: draw a full-size layout or dummy.

B. Organize all tools and materials.

(NOTE: Always maintain clean and safe work habits.)

C. Place base sheet square on table.

(NOTE: For basic-quality pieces and periodicals where precision is not required, paste-ups are usually done on preruled paper sheets tailored to the publication's format; premium-quality pieces, such as those produced by advertising agencies, are usually done on heavy and expensive illustration board.)

D. If not using a preruled sheet, draw light blue (nonreproducible) guidelines on base sheet.

E. Using fine-tipped black pen, draw trim marks and dotted folding lines on base sheet.

F. Trim excess paper from elements.

(NOTE: Some people prefer to trim and wax everything before beginning paste-up. It is better to wax small pieces of type and art before trimming so they won't be lost in the waxer. If using rubber cement or other adhesive, apply it as you go.)

G. Position and paste down line copy on base sheet.

(NOTE: Work from top of layout downward, pasting and squaring all elements. Keep checking for proper positioning and straightness to catch any flaws as quickly as possible.)

H. Position and paste down continuous-tone copy.

(NOTE: If halftones are made as film negatives, they need only be indicated for size and position; indicate by drawing a red holding line, using ruby film, or pasting down opaque red or black blockout film; key all photos; if halftone paper prints are used, handle like line copy.)

I. Apply rules, borders, and other finishing touches.

  1. Methods of ruling

    a. Typesetting machines

INFORMATION SHEET

- b. Pen and ink
  - 1) Ruling pen lines on one sheet combined with type on another
  - 2) Variable line widths from hairline to 3 point
- c. Scribing lines
  - 1) Scribed or scratched through emulsion on film negative
  - 2) Scribing tools and line-up table recommended for accuracy
- d. Adhesive border tape
  - 1) Self-adhering tape in roll form
  - 2) Many different sizes and styles

2. Making mitered corners
   - a. Position tape on the paste-up with tape overlapped beyond the corner of box.
   - b. Use a straight edge and sharp X-Acto knife to cut carefully at a 45-degree angle.
   - c. Remove excess tape and burnish border into position.

J. Check paste-up against layout or dummy.

K. Lay protective sheet over page and burnish entire surface with roller.

L. Cover finished paste-up with tissue or tracing paper overlay and, if desired, protective cover sheet.

M. Recheck the paste-up, make sure it is clean and neat, and write instructions to printer; to get an idea of how the printed piece will appear, make a photocopy of the paste-up.

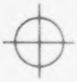
(NOTE: Rapid changes in graphic arts production have reduced the need for paste-up work by hand. Computers now make it possible to create and produce printed pieces right at your own desk. You can rearrange elements until you get your layout exactly the way you want it. What you see on your computer screen is what you will get on the printed page.)

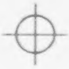
INFORMATION SHEET

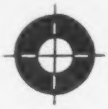
IV. Registration methods

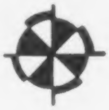
A. Register marks

1. Small designs placed on artwork to control the accurate placement of one color over another

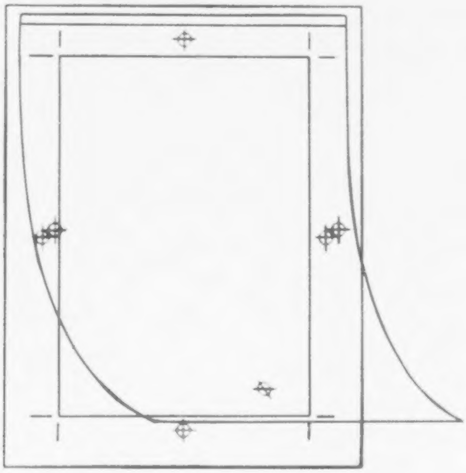








2. Duplicate designs are placed on overlays in alignment with copy or illustration boards.



Paste-Up with an Overlay Sheet

B. Register pin system

1. Common, accurate method of registering multiple exposures

2. Pins are placed on illustration board and each overlay has pre-punched holes which are placed on pins to align images.

3. Pin system is often carried through camera, stripping, and platemaking operations for accurate registration.

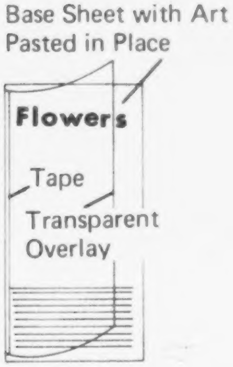
(NOTE: Paste-ups with numerous overlays must usually be taken apart to photograph, which makes the pin register system much quicker to use and also more accurate.)

INFORMATION SHEET

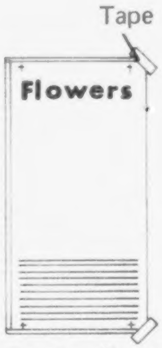
V. Use of clear acetate and ruby film

A. Preparing color overlays

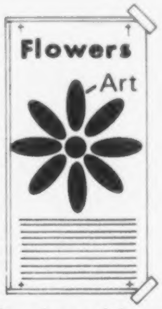
1. Paste the black (or major color) copy to the base sheet.
2. Paste each additional color in precise position on an acetate overlay, one representing each color.
3. Securely attach each overlay to the top of the base sheet with masking tape.
4. Use registration marks to ensure that all elements are kept in alignment.
5. Add color swatch showing the desired color to each overlay along with printing instructions.



Overlay taped to edge of base sheet.



Overlay flat to base sheet.



Overlay with art pasted in place.

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(NOTE: Where colors do not overlap, the color separations can be indicated on a single tissue overlay.)

B. Handling process color — Paste a photocopy of the original art in position on the base sheet and indicate that it is to be printed in process color.

(NOTE: It is not necessary to use an acetate overlay with process color. If there is line copy to be printed in color along with the full-color image, specify the color.)

INFORMATION SHEET

C. Preparing overlays for screen tints

1. Tape ruby film in register over paste-up.
2. Cut top layer of ruby film with X-Acto knife and peel away from clear film base all areas except those to be printed.
3. Prepare ruby film overlay for each screen tint area to be printed.

   (NOTE: When photographed, ruby film material reproduces as black, resulting in clear area on film negative.)

D. Preparing dropouts

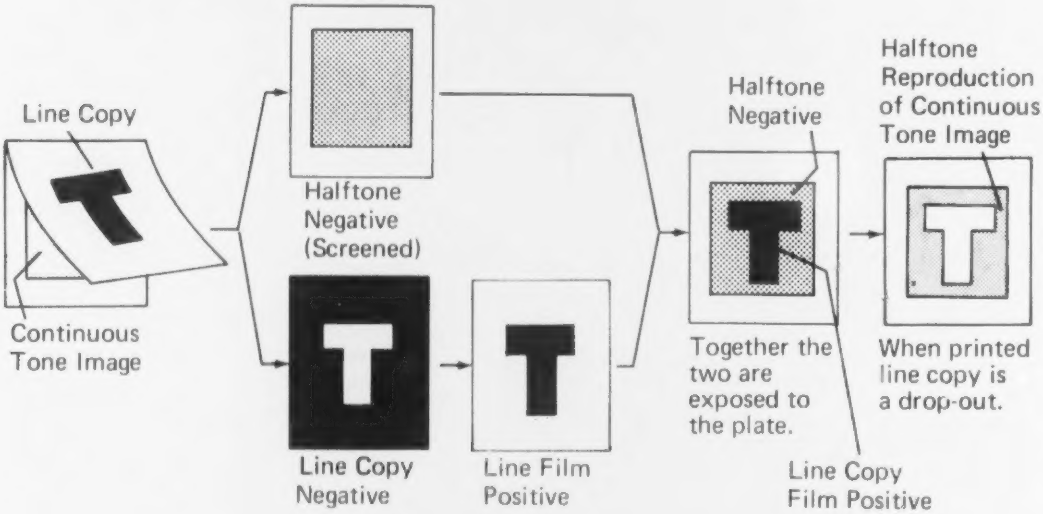
(NOTE: A dropout eliminates unwanted portions of a photo or drawing without damaging original copy.)

1. Tape ruby film in register over the artwork.

   (NOTE: Film negative can be used instead of original copy when preparing overlay of ruby film.)

2. Cut top layer of ruby film with X-Acto knife and peel away from clear film base area to be printed.

   (NOTE: Ruby film can be used as a mask and stripped up on the same flat with film negative.)


Line Copy
Continuous Tone Image
Halftone Negative (Screened)
Line Copy Negative
Line Film Positive
Halftone Negative
Line Copy Film Positive
Halftone Reproduction of Continuous Tone Image
Together the two are exposed to the plate.
When printed line copy is a drop-out.

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INFORMATION SHEET

E. Preparing windows

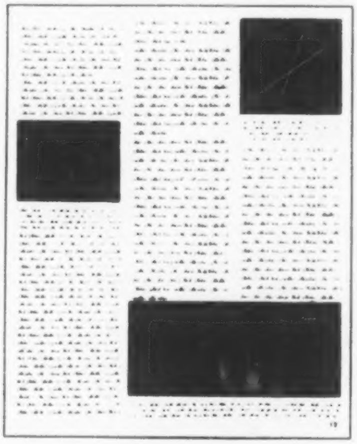
(NOTE: Use of ruby film is an accurate method of preparing windows for halftone negatives, particularly when line and halftone are very close together. Preparation of multiple windows in a row is more accurate and neater with ruby film than with the use of paste-up windows.)

1. Place guidelines on base sheet showing location of photographs.
2. Place ruby film over base sheet.

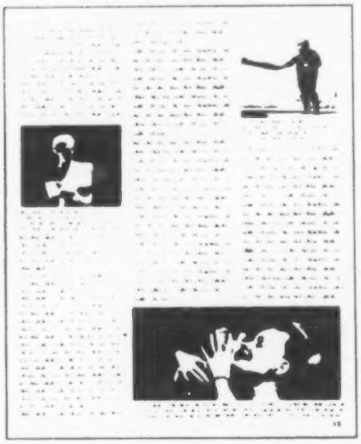
   (NOTE: Ruby film is transparent, allowing guidelines to be followed when cutting windows with knife.)
3. Cut ruby film material, then peel away from all areas except where photographs will appear.
4. Paste up line copy on base sheet.

   (NOTE: Both windows and line copy can be photographed in one exposure. Halftones of the photographs are then combined with the line negative on one flat. Separate flats are often necessary when line copy and photographs are very close together. In this instance, the halftones are stripped into the windows on one flat, while the line copy is stripped onto another flat. An exposure of each flat to the same plate is then made.)

FROM THIS . . .



. . . YOU GET THIS



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INFORMATION SHEET

VI. Processing art for production

A. Cropping

1. Uses

   a. To make art fit a particular layout

   b. To eliminate unnecessary portions of art

   c. To change shape of art

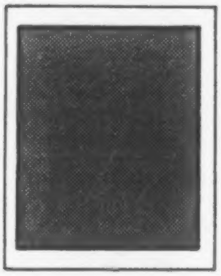
   d. To improve or emphasize desired portion of art

2. Method

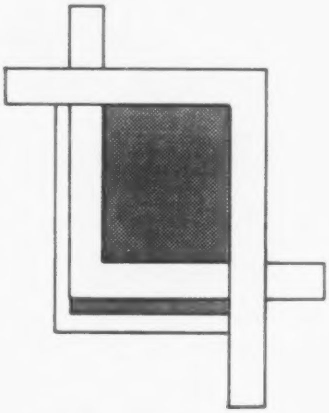
   a. Place cropper's Ls or strips of paper around art to mask out undesired portion.

   b. Mark where art is to be cropped with a grease pencil in the margin.

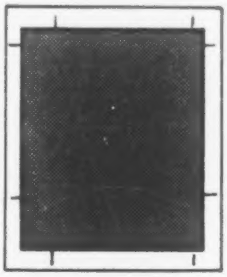
   (NOTE: Do not mark on the face of the original artwork.)



Original



Determining Desired Portion



Marked for Cropping

B. Scaling — Equivalent to copyfitting; art must be prepared to fit the size of the sheet or space on which it will be printed.

1. Enlarging

   (NOTE: Enlarging magnifies flaws in original copy.)

INFORMATION SHEET

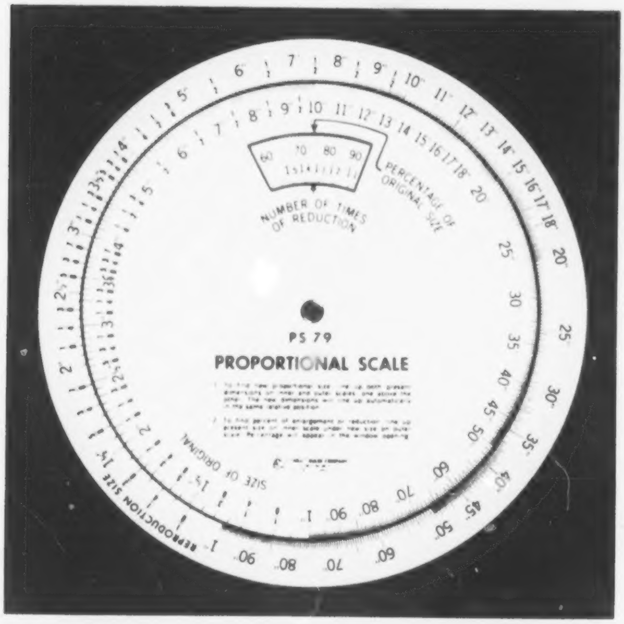
2. Reducing

   (NOTE: Reducing shrinks fine lines or dot patterns that may end up too thin to print.)

3. Methods

   a. Using a proportional scale

      1) Measure copy.
      2) Measure available space.
      3) Find width of original copy on inner circle of proportional scale.
      4) Line up width of original with size wanted on outer circle.
      5) Read in window the reduction or enlargement percentage.
      6) Repeat this operation for height.
      7) Use lowest percentage figure when shooting copy if it is to be a reduction.
      8) Use highest percentage figure when shooting copy if it is to be an enlargement.

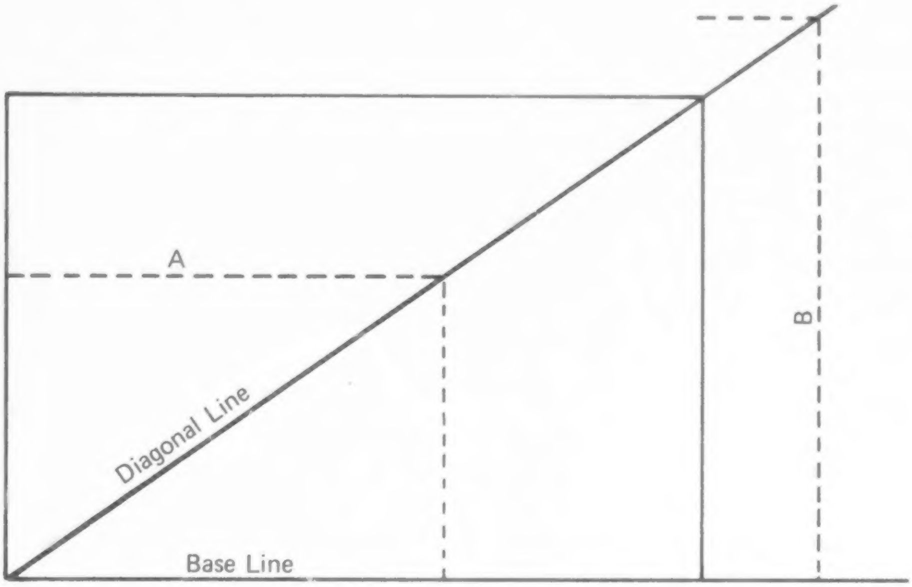

PERCENTAGE OF ORIGINAL SIZE
NUMBER OF TIMES OF REDUCTION
PS 79
PROPORTIONAL SCALE
SIZE OF ORIGINAL
REPRODUCTION SIZE

INFORMATION SHEET

b. Using diagonal line

1) Draw rectangle or square the same size as original copy.
2) Draw diagonal line through corners.
3) Measure desired width of scaled copy on base line.
4) From this point, extend line upward until it crosses diagonal line.
5) Point of intersection will be new height of scaled copy.

(NOTE: Camera copy is often referred to as an enlargement even though it is actually a reduction, i.e., a .75 enlargement would really be 3/4 original size copy.)



(NOTE: The solid rectangle indicates the size of the original copy, 2¾"h x 4"w. Broken line A shows reduction in height to 1¾", and shows new width. Broken line B shows enlargement of width to 4¾", and shows new height.)

INFORMATION SHEET

c. Using the formula $\frac{W}{H} = \frac{w}{h}$

(NOTE: W = original width, w = width of enlargement or reduction, H = original height, h = height of enlargement or reduction.)

1) Substitute actual dimensions into formula.

(NOTE: Assume the original art is 8" wide by 4" high and the space available allows for a 3" height.)

$\frac{W}{H} = \frac{w}{h}$ or $\frac{8}{4} = \frac{w}{3}$

2) Cross multiply.

$\frac{8}{4} = \frac{w}{3}$ or $4w = 24$

3) Solve the equation.

$4w = 24$ or $w = \frac{24}{4}$ or $w = 6"$

4. Specify scaling instructions on a sticker indicating percentage at which copy should be reproduced: 100% for same size, less than 100% for reductions, and over 100% for enlargements.

(NOTE: Time and money can be saved by shooting all images to be done in the same percentage at one time, but ganging may cause some loss of quality if originals differ in contrast or density.)

VII. Kinds of imposition

(NOTE: When producing books, booklets, magazines and other such publications, several pages are ordinarily printed on a single sheet of paper. Each sheet may contain 4, 8, 16, 32 or 64 pages. After printing and folding, these pages must fall in the correct sequence. Each printed and folded sheet is called a signature. Imposition is dictated by press capacity, the number of pages involved, and folding and binding.)

A. Printed-one-side (P1S)

1. As name implies, prints one side of sheet with each pass through press.

2. Ganging P1S impositions allows more than one job to be printed at a time.

(NOTE: Sheet size, color, and quantity must be considered when ganging.)

INFORMATION SHEET

B. Sheet wise

1. Also referred to as *work and back*, *print and back*, and *front and back*.
2. Requires two plates, one to print front side of the press sheet, and one to print back.

   (NOTE: These may be multiples of two.)
3. Uses same gripper edge for both plates

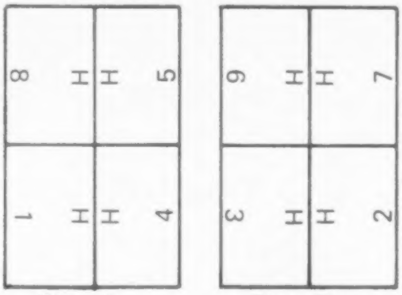
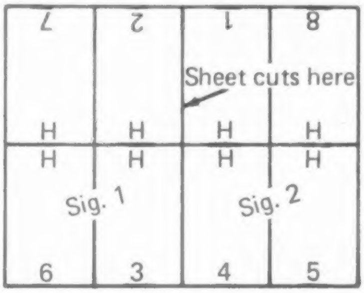


Plate One Plate Two

A One-Up, Sheet Wise, 8-Page Imposition

C. Work and turn

1. Also referred to as *print and turn*
2. All pages of signature are on one plate, outer form on one half and inner form on one half the plate.
3. Two complete copies per each sheet are produced.
4. Same gripper edge, both press runs

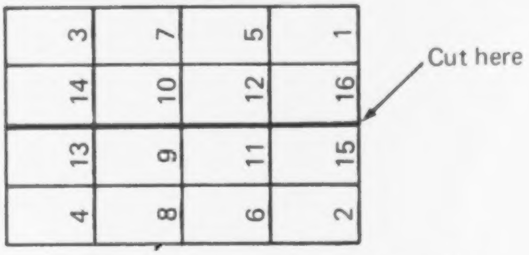


A One-Up, Work and Turn, 8-Page Imposition

INFORMATION SHEET

D. Work and tumble

1. Also referred to as *work and roll*, or *work and flop*.
2. All pages are on one plate.
3. Uses different gripper edge both runs.
4. Two complete copies, or multiples of two, per each sheet are produced.



A 16-Page Work and Tumble Imposition

VIII. Postal regulations

A. Standard size

1. Minimum — 3½" high x 5" long
2. Maximum — 6⅛" high x 11½" long
3. Length may not be more than 2.5 times or less than 1.3 times the height.
4. Pieces under minimum or over maximum are mailable with a surcharge.

B. Standard weight and thickness

1. Minimum — .007 inches thick with minimum size
2. Maximum — .25 inches thick with maximum size

C. Business reply cards

1. Permit must be obtained from U.S. Postal Service.
2. U.S. Postal Service specifications and negatives must be used.

INFORMATION SHEET

D. Third-class bulk mail

1. Annual fee charged
2. Special rates for certain nonprofit organizations

   EXAMPLES:Religious organizations, educational organizations
3. Prepaid postage required
4. Indicia — Imprinted designations used in mail pieces to denote payment of postage
5. Minimum — 200 pieces or 50 pounds of material of identical size and weight

   (NOTE: Contact your Postmaster or Customer Service Representative for more details. There is no charge for mail piece assessment services.)

PASTE-UP PRINCIPLES AND PROCEDURES
UNIT IX

JOB SHEET #1 — PREPARE A PASTE-UP

(NOTE: The application of this job sheet may be made to include the following variations to afford student experience with pasting up: (1) letterheads and envelopes, (2) business cards, (3) ads, (4) brochures, (5) newsletters, (6) newspaper pages, and (7) book or booklet signatures.)

A. Equipment and materials

   1. Drawing board or light table
   2. T-square
   3. Triangle
   4. Line gauge or metal ruler
   5. Masking or drawing tape
   6. Grid or base sheets
   7. Nonreproducing light blue pencil or pen
   8. Fine-tipped black pen
   9. Erasers
   10. X-Acto knife
   11. Trimboard
   12. Waxer, rubber cement or other adhesives
   13. Burnishing roller
   14. Opaque white paint or correction fluid
   15. Mechanical films
   16. Tissue or tracing paper
   17. Copy and layout furnished by instructor

B. Procedure

   1. Look over layout or dummy.
   2. Organize all tools and materials.

JOB SHEET #1

3. Using T-square as guide, tape base sheet square on table.

4. If not using preruled sheet, draw light blue (nonreproducible) guidelines on base sheet.

5. Using fine-tipped black pen, draw trim marks and dotted folding lines on base sheet.

6. Trim excess paper from elements.

7. Working from the top downward, paste down line copy on base sheet in position indicated on layout or dummy.

   (NOTE: Use T-square and triangle on each element as you place it to make sure it is straight and aligned.)

8. Position and paste down continuous-tone copy.

   (NOTE: If halftones are made as film negatives, they need only be indicated for size and position. Indicate position by drawing a red holding line or pasting down opaque red or black blockout film. If halftone paper prints are used, they are handled like line copy.)

9. Apply borders, rules and other finishing touches.

10. Lay protective sheet over page and burnish entire surface with roller.

11. Cover finished paste-up with tissue or tracing paper overlay.

12. Recheck the paste-up, make sure it is clean and neat, write instructions to printer.

    (NOTE: To get an idea of how the printed piece will appear, make a photocopy of the paste-up.)

13. Place name on back of paste-up and turn in for evaluation.

14. Clean work area and return equipment and materials to proper storage.

(INSTRUCTOR NOTE: Introduce students to "desktop publishing" by having them produce same paste-up, using computer, page layout software and laser printer.)

PASTE-UP PRINCIPLES AND PROCEDURES
UNIT IX

JOB SHEET #2 — PREPARE OVERLAYS USING CLEAR ACETATE AND RUBY FILM

A. Equipment and materials

1. Drawing board or light table
2. T-square
3. Triangle
4. Line gauge or metal ruler
5. Masking or drawing tape
6. Grid or base sheets
7. Nonreproducing light blue pencil or pen
8. Fine-tipped black pen
9. Register marks
10. X-Acto knife
11. Trimboard
12. Rubber cement or other adhesives
13. Burnishing roller
14. Clear acetate film and Rubylith
15. Copy and layout furnished by instructor

B. Procedure

1. Mechanical color overlays
    a. Paste the black (or major color) copy to the base sheet. (Refer to Job Sheet #1, if necessary.)
    b. Cut, on trimboard, a piece of clear acetate to the same size as grid or base sheet for each additional color to be used.
    c. Tape acetate in register over base sheet.
    d. Using rubber cement or other adhesive, paste down elements to be printed in color on acetate in position indicated by layout or dummy.

JOB SHEET #2

e. Give instructions on base sheet and each overlay showing the desired color.

f. Check work for accuracy, then turn in for evaluation.

(NOTE: This job may be completed by the instructor as a demonstration, or may be retained as a project for students completing darkroom, stripping, and platemaking instruction.)

2. Screen tint overlays

a. Cut on trimboard, a piece of ruby film (Rubylith) to the same size as base sheet to be used.

b. Tape ruby film, clear base side down in register over base sheet.

c. Using X-Acto knife, carefully outline area that is to be screened.

(CAUTION: Use extreme care to avoid cutting through ruby film base and damaging photo or illustration. A few practice cuts on ruby film scraps would be helpful in avoiding this type of mistake. Or, for added protection, place clear acetate between ruby film and grid or base sheet while cutting.)

d. Peel away all areas of ruby film except that which is to be screened.

e. Check work for accuracy, then turn in for evaluation.

(NOTE: This job may be completed by the instructor as a demonstration, or may be retained as a project for students completing darkroom, stripping, and platemaking instruction.)

3. Dropouts

a. Cut, on trimboard, a piece of ruby film (Rubylith) to the same size as photograph or illustration to be used.

b. Place ruby film, clear base side down, over photo and tape in place along top edge.

c. Using X-Acto knife, carefully outline area that is to be dropped out.

(CAUTION: Use extreme care to avoid cutting through ruby film base and damaging photo or illustration.)

d. Carefully peel away the portion of the ruby film from the area of the photo that will be printed.

JOB SHEET #2

e. Check work for accuracy, then turn in for evaluation.

(NOTE: This job may be completed by the instructor as a demonstration, or may be retained as a project for students completing darkroom, stripping, and platemaking instruction.)

4. Windows

a. Using T-square as guide, place base sheet on layout table and tape in place.

b. Mark, with light blue pencil, location of photographs on the base sheet.

c. Cut, on trimboard, a piece of ruby film (Rubylith) to the same size as base sheet.

d. Place ruby film, clear base side down, over base sheet and tape in place along top edge.

e. Using T-square, triangle, and X-Acto knife, carefully cut locations of photographs in the ruby film.

(CAUTION: Use extreme care to avoid cutting through film base.)

f. Peel away all areas of ruby film except that which will be printed as photographs.

g. Check all windows on ruby film for squareness and proper location.

(NOTE: Red lithographer's tape may be used as patches for small miscuts or slips if it is done neatly and accurately.)

h. Turn in for evaluation.

i. Clean work area and return equipment and materials to proper storage.

(NOTE: This job may be completed by the instructor as a demonstration, or may be retained as a project for students completing darkroom, stripping, and platemaking instruction.)

PASTE-UP PRINCIPLES AND PROCEDURES
UNIT IX

JOB SHEET #3 — CROP A PHOTOGRAPH

A. Equipment and materials

1. China marking pencil
2. Ruler or line gauge
3. T-square
4. Triangle
5. Sheet of translucent tracing paper
6. Four strips of paper approximately 3" x 8" or two cropper's Ls
7. Masking or drafting tape
8. Photograph furnished by instructor

B. Procedure

1. Using strips of paper or cropper's Ls to cover portions of photo, select portion of photo to be reproduced.
2. Using the ruler or line gauge and marking pencil, mark two sets of horizontal lines in the side margins of the photo, showing the desired area.
3. Mark two sets of vertical lines in the top and bottom margins of the photo showing the desired area.
4. Turn in for evaluation by instructor.

   (NOTE: Crop marks may be easily removed for future recropping.)
5. Clean work area and return equipment and materials to proper storage.

PASTE-UP PRINCIPLES AND PROCEDURES
UNIT IX

JOB SHEET #4 — SCALE COPY

A. Tools and materials

1. T-square
2. Triangle
3. Proportional scale (wheel)
4. Ruler or line gauge
5. Pencil or pen
6. Illustration or halftone copy and dummy or layout furnished by instructor
7. Several sheets of blank paper
8. Masking or drafting tape

B. Procedure

(NOTE: Scaling of copy will be accomplished using three different methods.)

1. Proportional scale method
    a. Using ruler or line gauge, carefully measure copy for both width and height.
    b. Measure space available on layout for copy.
    c. Find the width of the copy to be scaled on the inner circle of the proportional scale.
    d. Line up the original size with the desired size on the outer circle of the proportional scale.
    e. Read, in the window of the proportional scale, the percentage of the desired reduction or enlargement.
    f. Leave the scale set on this percentage and read on the outside circle what the reduced or enlarged height will be.
    g. Write the percentage and the desired size on a sheet of paper, attach to the copy, and turn in for evaluation.

    (NOTE: This job may be reproduced at new size by the instructor as a demonstration, or may be retained as a project for students completing darkroom instruction.)

JOB SHEET #4

2. Diagonal line method

   a. Using T-square, align sheet of paper straight on table and tape in place.

   b. Using the T-square, triangle, and line gauge, draw outline form the same size as copy you are scaling.

   c. Draw a diagonal line from the lower left corner through the upper right corner and continue the line across the page.

   d. Measure the desired width across the bottom of the first rectangle, and from that point draw a vertical line until it intersects the diagonal line.

   e. Measure the point of intersection; this will be the new height of scaled copy.

   f. Write the desired size beside the diagonal line drawing and turn in to be evaluated.

   (NOTE: This job may be reproduced at new size by the instructor as a demonstration, or may be retained as a project for students completing darkroom instruction.)

3. Formula method

   a. Using ruler or line gauge, carefully measure copy for both width and height.

   b. Measure space available on layout for copy.

   c. Using the formula $\frac{W}{H} = \frac{w}{h}$, and substituting the width of copy, determine the new width and height of copy for layout.

   d. Write the new width and height and turn in to instructor for evaluation.

   e. Clean work area; return equipment and materials to proper storage.

   (NOTE: This job may be reproduced at new size by the instructor as a demonstration, or may be retained as a project for students completing darkroom instruction.)

PASTE-UP PRINCIPLES AND PROCEDURES
UNIT IX

PRACTICAL TEST #1 — PREPARE A PASTE-UP

STUDENT'S NAME ______________________ DATE __________

EVALUATOR'S NAME ______________________ ATTEMPT NO. ______

Instructions: When you are ready to perform this task, ask your instructor to observe the procedure and complete this form. All items listed under "Process Evaluation" must receive a "yes" for you to receive an acceptable performance evaluation.

PROCESS EVALUATION

(EVALUATOR NOTE: Place a check mark in the "Yes" or "No" blanks to designate whether or not the student has satisfactorily achieved each step in this procedure. If the student is unable to achieve this competency, have the student review the materials and try again.)

The student:	Yes	No
1. Organized tools and materials.	______	______
2. Taped base sheet square on table.	______	______
3. Drew trim marks and folding lines on base sheet.	______	______
4. Trimmed excess paper from elements.	______	______
5. Pasted line copy in layout position.	______	______
6. Pasted down continuous tone copy.	______	______
7. Applied borders, rules, and finishing touches.	______	______
8. Burnished entire sheet.	______	______
9. Covered paste-up with protective overlay.	______	______

EVALUATOR'S COMMENTS: ____

____

PRACTICAL TEST #1

PRODUCT EVALUATION

(EVALUATOR NOTE: Rate the student on the following criteria. If the student is unable to demonstrate mastery, student materials should be reviewed and another product must be submitted for evaluation. See suggested performance evaluation keys below.)

Option A

4 — Skilled — Can perform job with no additional training.
3 — Moderately skilled — Has performed job during training program; limited additional training may be required.
2 — Limited skill — Has performed job during training program; additional training is required to develop skill.
1 — Unskilled — Is familiar with process, but is unable to perform job.

Option B

Yes — Can perform job with no additional training.

No — Is unable to perform job satisfactorily.

Criteria:	Rating:
Elements straight and aligned properly.	
Elements in proper position as indicated on layout.	
Trim marks and folding lines accurate.	
Finished paste-up clean and neat.	

EVALUATOR'S COMMENTS: ______

______

PASTE-UP PRINCIPLES AND PROCEDURES
UNIT IX

PRACTICAL TEST #2 — PREPARE OVERLAYS USING CLEAR ACETATE AND RUBY FILM

STUDENT'S NAME ______________________________ DATE __________

EVALUATOR'S NAME ______________________________ ATTEMPT NO. ________

Instructions: When you are ready to perform this task, ask your instructor to observe the procedure and complete this form. All items listed under "Process Evaluation" must receive a "yes" for you to receive an acceptable performance evaluation.

PROCESS EVALUATION

(EVALUATOR NOTE: Place a check mark in the "Yes" or "No" blanks to designate whether or not the student has satisfactorily achieved each step in this procedure. If the student is unable to achieve this competency, have the student review the materials and try again.)

The student:	Yes	No
1. Pasted black copy on base sheet for color overlay.		
2. Cut clear acetate for each additional color.		
3. Taped acetate, in register, over base sheet.		
4. Pasted color elements on acetate.		
5. Wrote printing instructions on base sheet and overlays.		
6. Cut ruby film same size as base sheet for screen tint.		
7. Taped ruby film in register over base sheet, clear side down.		
8. Outlined area to be screened with X-Acto knife.		
9. Peeled away excess ruby film.		
10. Cut piece of ruby film same size as art for dropout.		
11. Taped ruby film over art, clear side down.		
12. Outlined dropout area with X-Acto knife.		
13. Peeled ruby film from area to be printed.		
14. Taped base sheet to layout table for windows		
15. Marked location of photos on base sheet.		
16. Cut ruby film same size as base sheet.		
17. Taped ruby film over base sheet, clear side down.		
18. Cut locations of photos in ruby film.		
19. Peeled away areas of ruby film except for photos.		

EVALUATOR'S COMMENTS: ____

____

PRACTICAL TEST #2

PRODUCT EVALUATION

(EVALUATOR NOTE: Rate the student on the following criteria. If the student is unable to demonstrate mastery, student materials should be reviewed and another product must be submitted for evaluation. See suggested performance evaluation keys below.)

Option A

4 — Skilled — Can perform job with no additional training.
3 — Moderately skilled — Has performed job during training program; limited additional training may be required.
2 — Limited skill — Has performed job during training program; additional training is required to develop skill.
1 — Unskilled — Is familiar with process, but is unable to perform job.

Option B

Yes — Can perform job with no additional training.

No — Is unable to perform job satisfactorily.

Criteria:	Rating:
Mechanical color overlays in proper position, in register, and correctly labelled.	
Screen tint overlays in proper position, ruby film carefully and accurately cut, and properly peeled from area to be screened.	
Dropouts in proper position, ruby film carefully and accurately cut, and properly peeled from area to be printed.	
Windows in proper position, square and aligned, ruby film carefully and accurately cut, and peeled from all but photo positions.	

EVALUATOR'S COMMENTS: ______________________________

____

PASTE-UP PRINCIPLES AND PROCEDURES
UNIT IX

PRACTICAL TEST #3 — CROP A PHOTOGRAPH

STUDENT'S NAME ______________________ DATE __________

EVALUATOR'S NAME ______________________ ATTEMPT NO. ______

Instructions: When you are ready to perform this task, ask your instructor to observe the procedure and complete this form. All items listed under "Process Evaluation" must receive a "yes" for you to receive an acceptable performance evaluation.

PROCESS EVALUATION

(EVALUATOR NOTE: Place a check mark in the "Yes" or "No" blanks to designate whether or not the student has satisfactorily achieved each step in this procedure. If the student is unable to achieve this competency, have the student review the materials and try again.)

The student:	Yes	No
1. Used paper strips or cropper's Ls to select desired portion of photo.	______	______
2. Marked horizontal crop marks in margins.	______	______
3. Marked vertical crop marks in margins.	______	______

EVALUATOR'S COMMENTS: ____

____

PRACTICAL TEST #3

PRODUCT EVALUATION

(EVALUATOR NOTE: Rate the student on the following criteria. If the student is unable to demonstrate mastery, student materials should be reviewed and another product must be submitted for evaluation. See suggested performance evaluation keys below.)

Option A

4 — Skilled — Can perform job with no additional training.
3 — Moderately skilled — Has performed job during training program; limited additional training may be required.
2 — Limited skill — Has performed job during training program; additional training is required to develop skill.
1 — Unskilled — Is familiar with process, but is unable to perform job.

Option B

Yes — Can perform job with no additional training.

No — Is unable to perform job satisfactorily.

Criteria:	Rating:
Horizontal and vertical crop marks accurately drawn with china marker in margins of photo only.	

EVALUATOR'S COMMENTS: ______________________

____

PASTE-UP PRINCIPLES AND PROCEDURES
UNIT IX

PRACTICAL TEST #4 — SCALE COPY

STUDENT'S NAME ______________________________ DATE __________

EVALUATOR'S NAME ___________________________ ATTEMPT NO. ______

Instructions: When you are ready to perform this task, ask your instructor to observe the procedure and complete this form. All items listed under "Process Evaluation" must receive a "yes" for you to receive an acceptable performance evaluation.

PROCESS EVALUATION

(EVALUATOR NOTE: Place a check mark in the "Yes" or "No" blanks to designate whether or not the student has satisfactorily achieved each step in this procedure. If the student is unable to achieve this competency, have the student review the materials and try again.)

The student:	Yes	No
1. Scaled copy using a proportional scale.	______	______
2. Scaled copy using the diagonal line method.	______	______
3. Scaled copy using the formula method.	______	______

EVALUATOR'S COMMENTS: ____

____

PRACTICAL TEST #4

PRODUCT EVALUATION

(EVALUATOR NOTE: Rate the student on the following criteria. If the student is unable to demonstrate mastery, student materials should be reviewed and another product must be submitted for evaluation. See suggested performance evaluation keys below.)

Option A	Option B
4 — Skilled — Can perform job with no additional training. 3 — Moderately skilled — Has performed job during training program; limited additional training may be required. 2 — Limited skill — Has performed job during training program; additional training is required to develop skill. 1 — Unskilled — Is familiar with process, but is unable to perform job.	Yes — Can perform job with no additional training. No — Is unable to perform job satisfactorily.

Criteria:	Rating:
Copy accurately scaled according to art and layout provided.	

EVALUATOR'S COMMENTS: ______________________________

PASTE-UP PRINCIPLES AND PROCEDURES
UNIT IX

TEST

Name ______________________________ Score ____________________

1. Match the terms on the right with their correct definitions.

_____a. A detailed diagram instructing paste-up person how to arrange elements of a printing job

_____b. A set of folded sheets showing the placement of pages and elements within a printed piece; it may be either rough or comprehensive, depending on the client's needs

_____c. Everything that will be printed: type, art, other graphic elements

_____d. Copy which is ready to be photographed for platemaking according to the technical requirements of either quick or commercial printing

_____e. Art which is prepared for multiple color printing in which the colors overlap slightly

_____f. Camera-ready assembly of type, art and other graphic elements pasted on base sheet in exact position and containing instructions, either in the margins or on an overlay, for the printer; also, as verb, to adhere copy to grids or base sheets

_____g. Right angle marks on paste-up to show the four corners of the printed piece after it has been printed and trimmed

_____h. Block of masking material on a paste-up that shows position of a photograph or other visual element; a transparent opening in line negatives into which a halftone is stripped

_____i. Any image that is solid black with no gradation of tones: clip art, type, rules, dots, etc.

1. Acetate
2. Adhesive
3. Base sheet
4. Bleed
5. Camera-ready copy
6. Continuous tone copy
7. Copy
8. Cover sheet
9. Crop
10. Dropout
11. Dummy
12. Flop
13. Folding dummy
14. Ganging
15. Gripper edge
16. Imposition
17. Keyline art
18. Line copy
19. Overlay
20. Paste-up
21. PMT

TEST

______j. Any image that has a complete range of tones from black to white; photographs, paintings, drawings, etc.

______k. Wax, rubber cement, glue stick, spray mount or double-faced tape used to hold copy to base sheet

______l. Thin, flexible sheet of transparent plastic used to make overlays

______m. A two-ply, peel-apart masking material; usually ruby-red film adhered to a clear film base

______n. Surface on which copy is pasted up; usually smooth white hot press illustration board or preprinted grid sheet with all critical guidelines in place

______o. A sheet of acetate placed over a paste-up to hold copy that will appear in another color; also, a tissue or tracing paper flap to protect paste-up from dirt and damage and indicate instructions to the printer

______p. Second overlay or flap of heavy kraft or cover paper sometimes attached to paste-up for added protection and better appearance

______q. Edge of a sheet of paper that enters a press first

______r. Edge of the press sheet that is printed last

______s. To make several halftones at the same enlargement or reduction at one time; also to group together two or more jobs on a single press run

______t. A printed sheet containing a number of pages, usually 4, 8, 16, 32 or 64, that is folded and bound to become part of a publication

22. Process camera
23. Proportional scale
24. Reverse
25. Ruby film
26. Scaling
27. Signature
28. Surprint
29. Trailing edge
30. Trim marks
31. Window

TEST

______u. Arrangement of pages so that when printed, the press sheet can be folded and bound with the pages in proper sequence

______v. Large, sturdily built graphic arts camera used to photograph paste-ups and other copy, while at the same time reducing or enlarging the images as needed

______w. Abbreviation for photomechanical transfer, a Kodak trade name for a process used to make same size, enlarged or reduced positive paper, reverse or acetate prints, of line and continuous tone copy

______x. Process of calculating the percentage by which images should be enlarged or reduced

______y. A circular slide rule used to calculate percent that an original image must be reduced or enlarged to yield a specific reproduction size

______z. To mark a photograph or drawing to indicate which portions are to be reproduced

______aa. To reproduce the whites in an original as black and the blacks as white

______bb. A dark image printed over a lighter image area

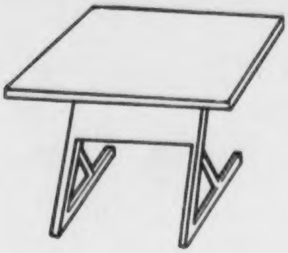
______cc. To reproduce a photograph or drawing so that it faces the opposite way

______dd. A term indicating that certain areas of a photograph or screen tint are to be left blank or unprinted

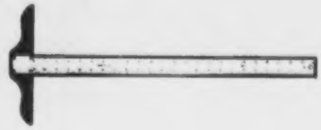
______ee. Printing image filling one or more margins and running off the edge of a sheet or page

TEST

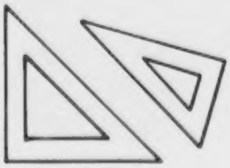
2. Identify the paste-up tools and materials pictured below.



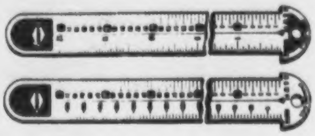
a. ______________________



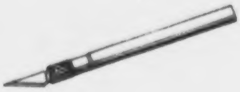
b. ______________________



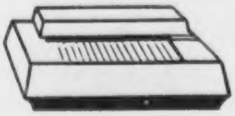
c. ______________________



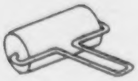
d. ______________________



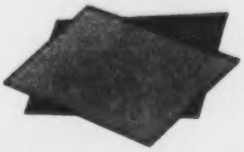
e. ______________________



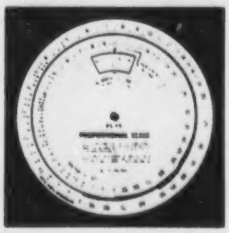
f. ______________________



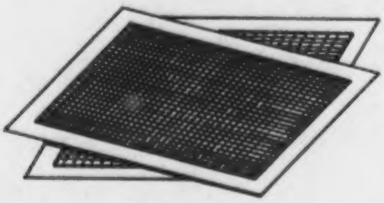
g. ______________________



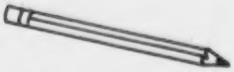
h. ______________________



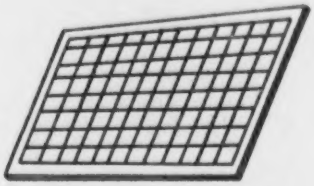
i. ______________________



j. ______________________

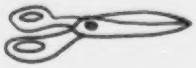


k. ______________________

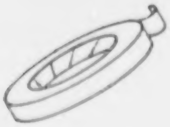


l. ______________________

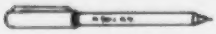
TEST



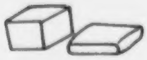
m. ____________________



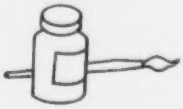
n. ____________________



o. ____________________



p. ____________________



q. ____________________

3. Select true statements concerning basic paste-up steps by placing an "X" in the appropriate blanks.

_____a. Organize all tools and materials.

_____b. Place grid or base sheet anywhere on the table.

_____c. Draw trim marks in nonreproducing light blue.

_____d. Cover finished paste-up with tissue or tracing paper overlay.

_____e. Check paste-up against layout or dummy.

4. Match the registration methods on the right with their correct descriptions.

(NOTE: Answers may be used more than once.)

_____a. Common, accurate method of registering multiple exposures

_____b. Small designs placed on artwork

_____c. Duplicate designs placed on overlays

_____d. Pins placed on illustration board

1. Register marks

2. Register pin system

TEST

5. Select true statements concerning use of clear acetate and ruby film by placing an "X" in the appropriate blanks.

_____a. To produce mechanical color overlays, paste the black copy to the base sheet and each additional color on an acetate overlay.

_____b. When preparing for process color, paste the original art in position on the base sheet and indicate that it is to be printed in process color.

_____c. Prepare a ruby film overlay for each screen tint area to be printed.

_____d. When preparing dropouts, original artwork does not need register marks.

_____e. For windows, cut ruby film and peel away from all areas except where photos will appear.

6. Complete the following statements associated with processing art for production by circling the correct words.

_____a. (**Cropping, Scaling**) is done to eliminate unnecessary portions of art.

_____b. The (**proportional scale, diagonal line**) method of scaling involves lining up width of original with size wanted on an outer circle.

_____c. The formula method of scaling uses the equation of

$$\left(\frac{W}{H} = \frac{w}{h} \qquad \frac{W}{w} = \frac{H}{h}\right)$$

_____d. The point of intersection will be the new height of scaled copy in the (**diagonal line, formula**) method of scaling copy.

7. Match the kinds of imposition on the right with their correct descriptions.

(NOTE: Answers may be used more than once and two terms may apply to one description.)

_____a.	Also referred to as print and turn	1.	Printed-one-side
_____b.	Same gripper edge, both plate runs	2.	Sheet wise
_____c.	Also referred to as work and back	3.	Work and turn
_____d.	Uses different gripper edge, both runs	4.	Work and tumble
_____e.	Prints one side of sheet with each pass through press		
_____f.	Requires two plates, one to print front side of press sheet, and one to print back		

TEST

8. Select true statements concerning postal regulations by placing an "X" in the appropriate blanks.

   _____a. Cards and letters must be a minimum of 3½" high x 5" long.

   _____b. Pieces under minimum size are not mailable.

   _____c. Length may not be more than 2.5 times or less than 1.3 times the height.

   _____d. The minimum on third class bulk mail is 200 pieces or 50 pounds of material of identical size and weight.

   _____e. U.S. Postal Service specifications and negatives must be used for business reply cards.

   _____f. A flat rate is charged to all customers mailing third class bulk mail.

(NOTE: If the following activities have not been accomplished prior to the test, ask your instructor when they should be completed.)

9. Demonstrate the ability to:

   a. Prepare a paste-up. (Job Sheet #1)

   b. Prepare overlays using clear acetate and ruby film. (Job Sheet #2)

   c. Crop a photograph. (Job Sheet #3)

   d. Scale copy. (Job Sheet #4)

PASTE-UP PRINCIPLES AND PROCEDURES
UNIT IX

ANSWERS TO TEST

1. a. 11
   b. 13
   c. 7
   d. 5
   e. 17
   f. 20
   g. 30
   h. 31
   i. 18
   j. 6
   k. 2
   l. 1
   m. 25
   n. 3
   o. 19
   p. 8
   q. 15
   r. 29
   s. 14
   t. 27
   u. 16
   v. 22
   w. 21
   x. 26
   y. 23
   z. 9
   aa. 24
   bb. 28
   cc. 12
   dd. 10
   ee. 4

2. a. Drawing table
   b. T-square
   c. Triangles
   d. Line gauge
   e. X-Acto knife
   f. Waxer
   g. Burnishing roller
   h. Mechanical films
   i. Proportional scale
   j. Grid or base sheets
   k. Nonreproducing light blue pencil
   l. Trimboard
   m. Scissors
   n. Masking or drawing tape
   o. Fine-tipped black pen
   p. Erasers
   q. Opaque white paint or correction fluid

3. a, d, e

4. a. 2
   b. 1
   c. 1
   d. 2

5. a, c, e

6. a. Cropping
   b. Proportional scale
   c. $\frac{W}{H} = \frac{w}{h}$
   d. Diagonal line

7. a. 3
   b. 2 or 3
   c. 2
   d. 4
   e. 1
   f. 2

8. a, c, d, e

9. Performance skills evaluated to the satisfaction of the instructor

PROOF PROCEDURES AND LEGAL CONSIDERATIONS
UNIT X

UNIT OBJECTIVE

After completion of this unit, the student should be able to proof copy and recognize the existence of legal restrictions on the printer. Competencies will be demonstrated by completing the assignment sheet and the unit test with a minimum score of 85 percent.

SPECIFIC OBJECTIVES

After completion of this unit, the student should be able to:

1. Match terms related to proof procedures and legal considerations with their correct definitions.
2. Select true statements concerning reasons for pulling proofs.
3. Distinguish among types of proofs.
4. Match proofreaders' marks with their correct meanings.
5. Select true statements concerning reading, marking and correcting galley proofs.
6. Select true statements concerning legal restrictions.
7. Name the three elements of copyright notice.
8. Select true statements concerning the tests for judging the "fair use" of copyrighted material.
9. Select from a list items that may be copyrighted.
10. Select from a list items not eligible for copyright.
11. Select true statements concerning provisions for using photographs of people for advertising purposes.
12. Read and mark proof copy. (Assignment Sheet #1)

PROOF PROCEDURES AND LEGAL CONSIDERATIONS
UNIT X

SUGGESTED ACTIVITIES

A. Obtain additional materials and/or invite resource people to class to supplement/reinforce information provided in this unit of instruction.

(NOTE: This activity should be completed prior to the teaching of this unit.)

B. Make transparency from the transparency master included with this unit.

C. Provide students with objective sheet.

D. Discuss unit and specific objectives.

E. Provide students with information and assignment sheets.

F. Discuss information and assignment sheets.

(NOTE: Use the transparency to enhance the information as needed.)

G. Integrate the following activities throughout the teaching of this unit:

1. Show samples of the types of proofs.
2. Demonstrate how to make corrections in proof copy.
3. Prepare a bulletin board display showing typographical and other errors and flaws.
4. If possible, invite a guest speaker from the Treasury Department to discuss the topic of counterfeiting.
5. Write to U.S. Copyright Office (Register of Copyrights, Library of Congress, Washington, DC 20559) and obtain copyright information.
6. Meet individually with students to evaluate their progress through this unit of instruction, and indicate to them possible areas for improvement.

H. Give test.

I. Evaluate test.

J. Reteach if necessary.

SUGGESTED ACTIVITIES

REFERENCES USED IN WRITING THIS UNIT

A. Baird, Russell N., Arthur T. Turnbull and Duncan McDonald. *The Graphics of Communication*, 5th ed. New York, NY: Holt, Rinehart and Winston, 1987.

B. Beach, Mark, Steve Shepro and Ken Russon. *Getting it Printed.* Portland, OR: Coast to Coast Books, 1986.

C. Crow, Wendall C. *Communication Graphics.* Englewood Cliffs, NJ: Prentice-Hall, 1986.

D. Dennis, Erwin A. and John D. Jenkins. *Comprehensive Graphic Arts.* Indianapolis, IN: Bobbs-Merrill Educational Publishing, 1974.

E. *Guide to Copyright, New Law, New Directions.* Washington, DC: Association for Education Communication and Technology, and National Audio-Visual Association, 1977.

SUGGESTED SUPPLEMENTAL MATERIAL

Slide Presentation — *Proofreading* (5086). 59 color, 35-mm slides, 1977.

Available from:

Graphic Arts Technical Foundation
4615 Forbes Avenue
Pittsburgh, PA 15213-3796
(412) 621-6941

PROOF PROCEDURES AND LEGAL CONSIDERATIONS
UNIT X

INFORMATION SHEET

I. **Terms and definitions**

A. AA (author's alteration) — Any change in a proof not caused by typesetter's or printer's error; the author pays the charges

B. Copyright — Form of protection given by law to authors of literary, dramatic, musical, artistic, and other similar works

C. Counterfeiting — Making an imitation or copy of a genuine article (money, painting, etc.) with the intent to deceive

D. Fair use — A limitation on the exclusive rights of copyright owners

E. Infringement — Using copyrighted material in such a way as to reduce the profits that would otherwise be received by the copyright holder

F. Libel — A written or pictorial statement that conveys an unjustly unfavorable impression

G. Path line — A line drawn from error in proof to symbol for error in nearest margin

H. PE (printer's error) — Any change made because of printer or typesetter error

(NOTE: The designation TA [typesetter alteration] may also be used.)

I. Pornography — Writing or illustrations considered obscene

J. Proof — A trial reproduction of type and illustrations to reveal errors or flaws

K. Proof OK — Customer signature approving a proof and authorizing the job to advance to the next stage

L. Proofreader marks — Symbols and abbreviations used by proofreaders to indicate corrections necessary in the proof

M. Proofreading — Reading copy on a proof and marking any errors or flaws for correction

II. **Reasons for pulling proofs**

A. Every job should be checked and double-checked by both the printer and customer — this is the only way to verify that typesetting, the paste-up, negatives, flats and plates are accurate and complete.

(NOTE: Inquire about anything that seems wrong.)

INFORMATION SHEET

B. Proofs help determine who is responsible for mistakes and should pay for correcting them.

(NOTE: Printers and customers each pay for their own mistakes. Typesetters accept responsibility for their errors, but charge for time spent correcting errors that were not detected in original copy or remaking lines for customers who have merely changed their minds.)

C. After examining a proof, the customer decides whether to approve it or ask for another proof; if it is OK'd, the customer authorizes the next stage in the production sequence.

(NOTE: Approved, signed and dated proofs should be kept as a record.)

III. Types of proofs

A. Galley proof — When copy has been set into type, "galleys" are read to detect and eliminate errors made by the typesetter.

(NOTE: Before the proof is sent to the customer it is first proofread in the shop. This is the time to make changes, if needed; if made later, they will be more costly.)

1. Visual editing — Operator reads copy on computer screen, checking for errors, changes, or omissions, and by use of a cursor, locates and corrects the copy.

2. Cold type composition

   a. Phototypesetting or microcomputer shops make photocopies or plain bond, laser printouts of galley proofs and corrections are marked on these paper positives.

   b. Photocopies are made of typewritten, hand-lettered and transfer lettered work and used for proofreading and marking.

3. Hot type composition

   a. Line-casting and foundry type forms are inked and proof is pulled on proof press.

   b. Proof is pulled on newsprint paper larger than type to leave room for marking corrections.

4. Revised — New mistakes can slip in when old ones are corrected — revised galley proofs provide protection for printers and customers by permitting detection of errors made during corrections before material has been put in page form.

INFORMATION SHEET

5. Duplicate — Some customers require duplicate sets of galley proofs: one for marking corrections (on white paper) and the other to be cut apart and pasted on layout sheets (sometimes on colored stock).

B. Page proof — Provides a chance to check if the material is positioned and aligned properly, if headlines are with the right text, if captions are with the correct picture, and so on.

   1. A photocopier is often used to make a proof of a paste-up.

   2. Proofs of paste-ups are necessary

      a. To prevent handling the original paste-up while verifying its accuracy

      b. To eliminate the distraction of guidelines and trimmed edges of pasted pieces so that image straightness and spacing can be checked

      c. To provide a file copy of the page

   3. Any corrections needed can be marked on the page proof.

C. Blueline or brownline proof — Prepress, photographic replica in blue or brown of all pages in a printed job that is used if there are overlays, halftones, reverses, tints or anything that will not show on a photocopy.

   1. Check to see that everything was stripped correctly.

   2. Proof illustrations.

      a. Check dimensions; negatives must fit their space.

      b. Look for imperfections like photos with jagged edges, unsightly scratches, blemishes and spots.

      c. Examine content; make sure photo is cropped and scaled properly and faces in proper direction.

      d. Check if halftone exposure is too gray or has too much contrast.

      e. Watch for paper clip marks on edge, faint handwriting on surfaces, or cracks from folded photos.

   3. Stick pages together back-to-back for two-sided jobs, fold, trim, staple, and check page sequence.

      (NOTE: Don't leave anything to chance.)

   4. When proofing simple two-color jobs, color differences can be indicated by varying exposure time.

INFORMATION SHEET

5. Write instructions directly on proof.

D. Color proof — Intended primarily for color separations

(NOTE: Overlay methods such as 3M's Color Key, laminated overlays like DuPont's Cromalin, and progressive proofs [progs], are examples of traditional color proofing systems.)

1. Color proofing materials are expensive.

2. Costly separations may be avoided by use of electronic soft copy previewing; computers and scanners allow the operator to manipulate the color image.

E. Press proof — Proof made on press using the plates, paper, and ink specified for the job

1. Costly in both time and money

2. Used primarily for premium four-color printing jobs

IV. **Proofreaders' marks** (Transparency 1)

(NOTE: Proofreader's marks are often called a printer's shorthand.)

A. ₰ — Delete

B. ⁀₰‿ — Delete and close up

C. 9 — Turn inverted letter

D. ⁐ — Close up

E. # — Insert space

F. ✓✓✓ — Equalize spacing

G. less# — Reduce spacing

H. ¶ — Paragraph

I. □ — Indent one em

J. [— Move to left

K.] — Move to right

L. ⊔ — Lower

M. ⊓ — Elevate

INFORMATION SHEET

N. ∧ — Insert marginal addition
O. X — Broken letter
P. ⊥ — Push down space
Q. ═ — Straighten
R. || — Align type
S. $\overset{\wedge}{,}$ — Insert comma
T. $\overset{,}{\vee}$ — Insert apostrophe
U. $\overset{,,}{\vee}$ — Insert quotes
V. (/) — Insert parentheses
W. [/] — Insert brackets
X. $\underset{3}{\wedge}$ — Insert inferior figure
Y. $\overset{3}{\vee}$ — Insert superior figure
Z. =/ — Hyphen
AA. |em| — Em dash
BB. |en| — En dash
CC. ;/ — Insert semicolon
DD. :/ — Insert colon
EE. ⊙ — Insert period
FF. ?/ — Insert question mark
GG. (?) — Query to author
HH. ⌒ — Use ligature
II. (sp) — Spell out
JJ. tr — Transpose
KK. Set 1, 2, 3 — In this order
LL. wf — Wrong font
MM. bf — Set in bold face type

INFORMATION SHEET

NN. rom — Set in roman type

OO. ital — Set in italic type

PP. Caps — Set in capitals

QQ. sc — Set in small capitals

RR. lc — Set in lower case

SS. ~~B~~ — Lowercase letter

TT. stet — Let it stand

UU. no ¶ — Run in same paragraph

VV. ld> — Insert lead between lines

WW. hr# — Hair space between letters

XX. out sc — Out—see copy

YY. # — End of copy

V. Reading, marking and correcting galley proofs

A. Read — To discover errors and flaws.

1. Check spelling.
2. Check grammar.
3. Check punctuation.
4. Check capitalization.
5. Check figures.
6. Check indentions and paragraphs.
7. Check mark-up instructions for match to typeset copy.

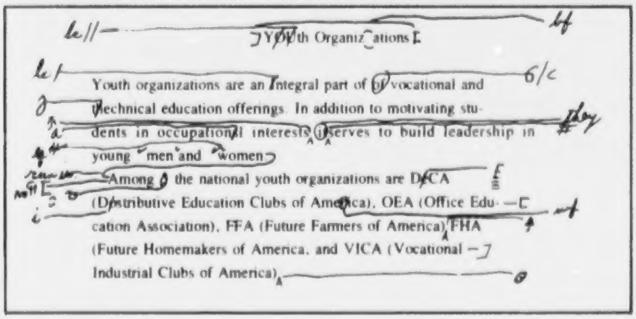
(NOTE: Proofreading sometimes is done by two people, a copyholder holds the copy and reads the original manuscript aloud to the proofreader who watches the proof closely for errors and marks necessary corrections.)

INFORMATION SHEET

B. Mark — To denote each error on proof.

(NOTE: Make sure corrections are legible.)

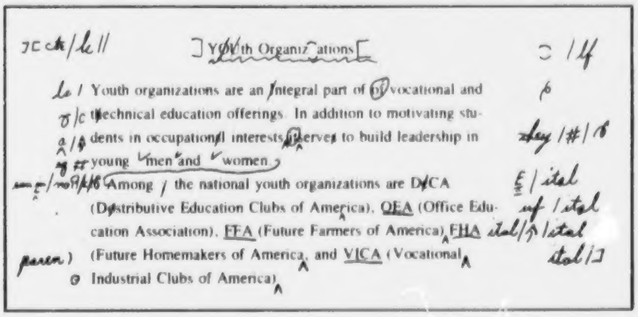
1. Path line method of marking



lc// Youth Organizations lf

lc/ Youth organizations are an Integral part of of vocational and
technical education offerings. In addition to motivating stu-
dents in occupational interests it serves to build leadership in
young men and women
Among the national youth organizations are DECA
(Distributive Education Clubs of America), OEA (Office Edu-
cation Association), FFA (Future Farmers of America) FHA
(Future Homemakers of America, and VICA (Vocational
Industrial Clubs of America)

2. Corresponding margin marks method



ctr/lc// Youth Organizations /lf

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cation Association), FFA (Future Farmers of America) FHA ital/ /ital
paren) (Future Homemakers of America, and VICA (Vocational ital/
Industrial Clubs of America)

C. Correct

1. Cold type composition

a. Reset a whole word, line or paragraph, not just a character.

b. Check to be sure new type is a perfect match.

INFORMATION SHEET

c. Using light table, paste correction over error; then burnish it well.

(NOTE: If layout table is used, use T-square to check correction for straightness.)

2. Hot type composition

a. Reset complete line.

b. Exchange corrected lines for lines with errors.

VI. Legal restrictions

A. Considerations for the printer and customer

1. Printers and customers must be on guard to prevent becoming involved in legal matters relating to copyrighting, counterfeiting and pornography.

2. Generally speaking, a person is libeled when he or she is identified in a publication that defames (damages) him or her by exposing him or her to public hatred, contempt, or ridicule.

3. Photographs can be defamatory when they cast a "false light" on an individual or group.

4. Since law changes rapidly, continued reading in this area is necessary.

B. U.S. copyright law

1. A new copyright law went into effect on January 1, 1978.

2. The purpose of copyright is to secure for the creator of the material all the benefits earned by creating it.

3. The U.S. law now parallels the international agreement followed by most of the leading countries of the world.

4. Work copyrighted after January 1, 1978, is protected for the author's lifetime plus 50 years.

5. "Works made for hire" have copyright protection 75 years from the first year of publication or 100 years from the year of creation, whichever is shorter.

6. The new copyright law defines "fair use" of material and "infringement of copyright."

INFORMATION SHEET

VII. **Elements of copyright notice**

A. The word "copyright", the abbreviation "copr.," or the symbol ©

B. The name of the copyright owner

C. The year of publication

(NOTE: To establish an exact date of copyright, fill out a form available from the Copyright Office, pay a small fee, and send copies of the copyrighted work for official registration. U.S. copyright laws are administered by the Register of Copyrights, Library of Congress, Washington DC 20559.)

VIII. **Tests for judging the "fair use" of copyrighted material**

A. The purpose and character of the use

EXAMPLES:The use for profit; for educational purposes

B. The nature of the copyrighted works

C. The amount of material used in relation to the total material

D. The effect of the use on the commercial market value of the material

IX. **Items that may be copyrighted**

A. Books

B. Brochures

C. Catalogs

D. Leaflets

E. Pamphlets

F. Greeting cards

G. Single pages

H. Newspapers

I. Magazines

J. Maps

K. Drawings

L. Paintings

INFORMATION SHEET

M. Photographs

N. Musical compositions

O. Labels

P. Film strips

Q. Motion pictures

X. Items not eligible for copyright

A. Names

B. Titles

C. Slogans

D. Familiar symbols

E. Familiar designs

F. Time cards

G. Account books

H. Calendars

I. Rulers

J. Sporting event schedules

K. Graph paper

L. Material from U.S. Government

XI. Provisions for using photographs of people for advertising purposes

A. Written permission (model release) must be obtained if faces are recognizable.

B. In using pictures of children (minors), written permission of legal guardian must be obtained.

C. Failure to obtain written permission may result in claim of invasion of privacy and demand for payment.

Proofreaders' Marks

ℊ	Delete
⁀ℊ‿	Delete and close up
9	Turn inverted letter
⁀‿	Close up
#	Insert space
✓✓✓	Equalize spacing
less #	Reduce spacing
¶	Paragraph
□	Indent one em
[	Move to left
]	Move to right
⊔	Lower
⊓	Elevate
∧	Insert marginal addition
X	Broken letter
⊥	Push down space
═	Straighten
‖	Align type
$\underset{\wedge}{,}$	Insert comma
$\overset{,}{\vee}$	Insert apostrophe
$\overset{,,}{\vee}$	Insert quotes
(/)	Insert parentheses
[/]	Insert brackets
$\underset{3}{\wedge}$	Insert inferior figure
$\overset{3}{\vee}$	Insert superior figure
=/	Hyphen

|em|	Em dash
|en|	En dash
;/	Insert semicolon
:/	Insert colon
⊙	Insert period
?/	Insert question mark
(?)	Query to author
⁀	Use ligature
(sp)	Spell out
tr	Transpose
set 1, 2, 3	In this order
wf	Wrong font
bf	Set in bold face type
rom	Set in roman type
ital	Set in italic type
Caps	Set in capitals
sc	Set in small capitals
lc	Set in lower case
B̸	Lower-case letter
stet	Let it stand
no ¶	Run in same paragraph
ld>	Insert lead between lines
hr#	Hair space between letters
out sc	Out–see copy
✻	End of copy

PROOF PROCEDURES AND LEGAL CONSIDERATIONS
UNIT X

ASSIGNMENT SHEET #1 — READ AND MARK PROOF COPY

Name ______________________________ Score ________________

Directions: Read and mark the copy below with appropriate proofreaders' marks, using the path line method.

Proofreading is the art of checking cop y fore errors and indicating the corrections to be made. Ideally, proofreading is done by two peoples. One is the *copy holder* who reads aloud fromthe original copy to the proof reader. The other, called the *proofreader*, follows the reading proof and marks any corrections necessary.

Sometimes, however, the proofreader werks alone, checking the original copy against the proof.

Proofreaders marks (also *proof marks*) are the symbols used bythe proofreader to indicate the corrections necessary *in* the proof. Examples of the msot commonly used proof marks are shown on the following page

PROOF PROCEDURES AND LEGAL CONSIDERATIONS
UNIT X

ANSWERS TO ASSIGNMENT SHEET

Assignment Sheet #1

Proofreading is the art of checking cop y fore errors and indicating the corrections
to be made. Ideally, proofreading is done by two peoples. One is the *copy holder* who
# reads aloud fromthe original copy to the proof reader. The other, called the *proofreader*,
follows the reading proof and marks any corrections necessary.

no ¶ Sometimes, however, the proofreader werks alone, checking the original copy against ○
the proof.

Proofreaders marks (also *proof marks*) are the symbols used bythe proofreader to #
wf indicate the corrections necessary *in* the proof. Examples of the msot commonly used tr
proof marks are shown on the following page ⊙

PROOF PROCEDURES AND LEGAL CONSIDERATIONS
UNIT X

TEST

Name ______________________ __________ Score ______________________

1. Match the terms on the right with their correct definitions.

_____a. Customer signature approving a proof and authorizing the job to advance to the next stage

_____b. Reading copy on a proof and marking any errors or flaws for correction

_____c. Symbols and abbreviations used by proofreaders to indicate corrections necessary in the proof

_____d. A trial reproduction of type and illustrations to reveal errors or flaws

_____e. A line drawn from error in proof to symbol for error in nearest margin

_____f. Any change made because of printer or typesetter error

_____g. Any change in a proof not cause by typesetter's or printer's error; the author pays the charges

_____h. A written or pictorial statement that conveys an unjustly unfavorable impression

_____i. Form of protection given by law to authors of literary, dramatic, musical, artistic, and other similar works

_____j. A limitation on the exclusive rights of copyright owners

_____k. Using copyrighted material in such a way as to reduce the profits that would otherwise be received by the copyright holder

_____l. Writing or illustrations considered obscene

1. AA
2. Copyright
3. Counterfeiting
4. Fair use
5. Infringement
6. Libel
7. Path line
8. PE
9. Pornography
10. Proof
11. Proof OK
12. Proofreader marks
13. Proofreading

TEST

_____m. Making an imitation or copy of a genuine article (money, painting, etc.) with the intent to deceive

2. Select true statements concerning reasons for pulling proofs by placing an "X" next to the true statements.

_____a. Every job should be checked and double-checked only by the customer.

_____b. Proofs help determine who is responsible for mistakes and should pay for correcting them.

_____c. If a proof is OK'd, the customer authorizes the next stage in the production sequence.

3. Distinguish among types of proofs by writing the correct numbers in the blanks.

_____a. Proof of a paste-up made on a photocopier to eliminate distractions and preserve the original.

_____b. Proof made to detect and eliminate errors made by the typesetter; may be made with laser printer, on proof press, or visually edited on computer screen.

_____c. Expensive proof intended primarily for color separations.

_____d. Prepress, photographic proof of all pages that is used if there are elements that will not show on a photocopy.

_____e. Proof made on the press using the plates, paper and ink specified for the job; used primarily for premium four-color jobs.

1. Galley proof
2. Color proof
3. Press proof
4. Page proof
5. Blueline or brownline proof

4. Match the proofreaders' marks on the right with their correct meanings.

_____a. Wrong font

_____b. Delete

_____c. Set in roman type

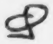
_____d. Close up

_____e. Set in bold face type

1. ⁐
2. #
3. wf
4. bf
5. rom

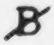
TEST

_____f. Delete and close up — 6. ital

_____g. Insert space — 7.


_____h. Set in italic type — 8.

_____i. Run in same paragraph — 9.

_____j. Lowercase letter — 10.


_____k. Transpose — 11.

_____l. Insert comma — 12. no¶

_____m. Lower — 13. tr

5. Select true statements concerning reading, marking and correcting galley proofs by placing an "X" next to the true statements.

   _____a. The objective of reading galley proofs is to discover errors and flaws.

   _____b. The two methods of marking copy are the path line method and the corresponding margin marks method.

   _____c. When correcting cold type composition, reset a whole word, line or paragraph, not just a character.

6. Select true statements concerning legal restrictions by placing an "X" next to the true statements.

   _____a. Printers and customers must be on guard to prevent becoming involved in legal matters relating to copyrighting, counterfeiting and pornography.

   _____b. A new copyright law went into effect on January 1, 1978.

   _____c. Copyrighted work is protected for the author's lifetime.

7. Name the three elements of copyright notice.

   a. ______________________________

   b. ______________________________

   c. ______________________________

TEST

8. Select true statements concerning the tests for judging the "fair use" of copyrighted material by placing an "X" next to the true statements.

_____a. One test for judging "fair use" is the amount of material used in relation to the total material.

_____b. One must consider the nature of the copyrighted works.

_____c. The literary significance of the work must be considered.

_____d. The effect of the use on the commercial market value of the material must be considered.

9. Select from the following list items that may be copyrighted by placing an "X" in the appropriate blanks.

_____a. Maps

_____b. Motion pictures

_____c. Greeting cards

_____d. Time cards

_____e. Photographs

10. Select from the following list items that are not eligible for copyright by placing an "X" in the appropriate blanks.

_____a. Names

_____b. Familiar designs

_____c. Newspapers

_____d. Paintings

_____e. Graph paper

11. Select true statements concerning the provisions for using photographs of people for advertising purposes by placing an "X" next to the true statements.

_____a. In using pictures of children, written permission of legal guardian must be obtained.

_____b. Permission is not needed if faces are recognizable.

_____c. Failure to obtain written permission may result in claim of invasion of privacy and demand for payment.

TEST

(NOTE: If the following activity has not been accomplished prior to the test, ask your instructor when it should be completed.)

12. Read and mark proof copy. (Assignment Sheet #1)

PROOF PROCEDURES AND LEGAL CONSIDERATIONS
UNIT X

ANSWERS TO TEST

1. a. 11
   b. 13
   c. 12
   d. 10
   e. 7
   f. 8
   g. 1
   h. 6
   i. 2
   j. 4
   k. 5
   l. 9
   m. 3

2. b, c

3. a. 4
   b. 1
   c. 2
   d. 5
   e. 3

4. a. 3
   b. 7
   c. 5
   d. 1
   e. 4
   f. 8
   g. 2
   h. 6
   i. 12
   j. 10
   k. 13
   l. 9
   m. 11

5. a, b, c

6. a, b

7. a. The word "copyright", the abbreviation "copr.," or the symbol ©
   b. The name of the copyright owner
   c. The year of publication

8. a, b, d

9. a, b, c, e

10. a, b, e

11. a, c

12. Evaluated to the satisfaction of the instructor